

# Control and Load Switches

## Complete Switches



Pages 12-6...12-8

- Main Switches / EMERGENCY OFF Switches
- Series Q
- 194E Series B Load Switch, Type Q for Installation in Distribution Cubicle
- 194E Series B Load Switch / EMERGENCY OFF, Type R for Installation in Distribution Cubicle
- 194E Series B Load Switch in Enclosure for Base Mounting

## Control and Load Switches / Bulletin 194L / L 2



Pages 12-15...12-33

- Rated Currents up to 25 A
- Choice of Functions and Switch Positions
- Screw and Central Fixture
- Front or Basic Mounting
- Fingerproof Switch Body (IP20)
- Water Spray and Dust-Proof Actuators (IP65)
- Easily Accessible Terminals
- Clearly Marked Terminals

## Control Switches / Bulletin 194C / L 1



Pages 12-9...12-13

- Rated Currents up to 10 A
- Wide Choice of Functions and Switch Positions
- Standard Installation Sizes of 16 mm and 22 mm (for combining with 800E Control and Indicating Units)
- Fingerproof Switch Body (IP20)
- Water Spray and Dust-Proof Actuators (IP65)
- Easily Accessible Terminals
- Clearly Marked Terminals

## Switch Disconnectors / Bulletin 194E Series B



Pages 12-35...12-38

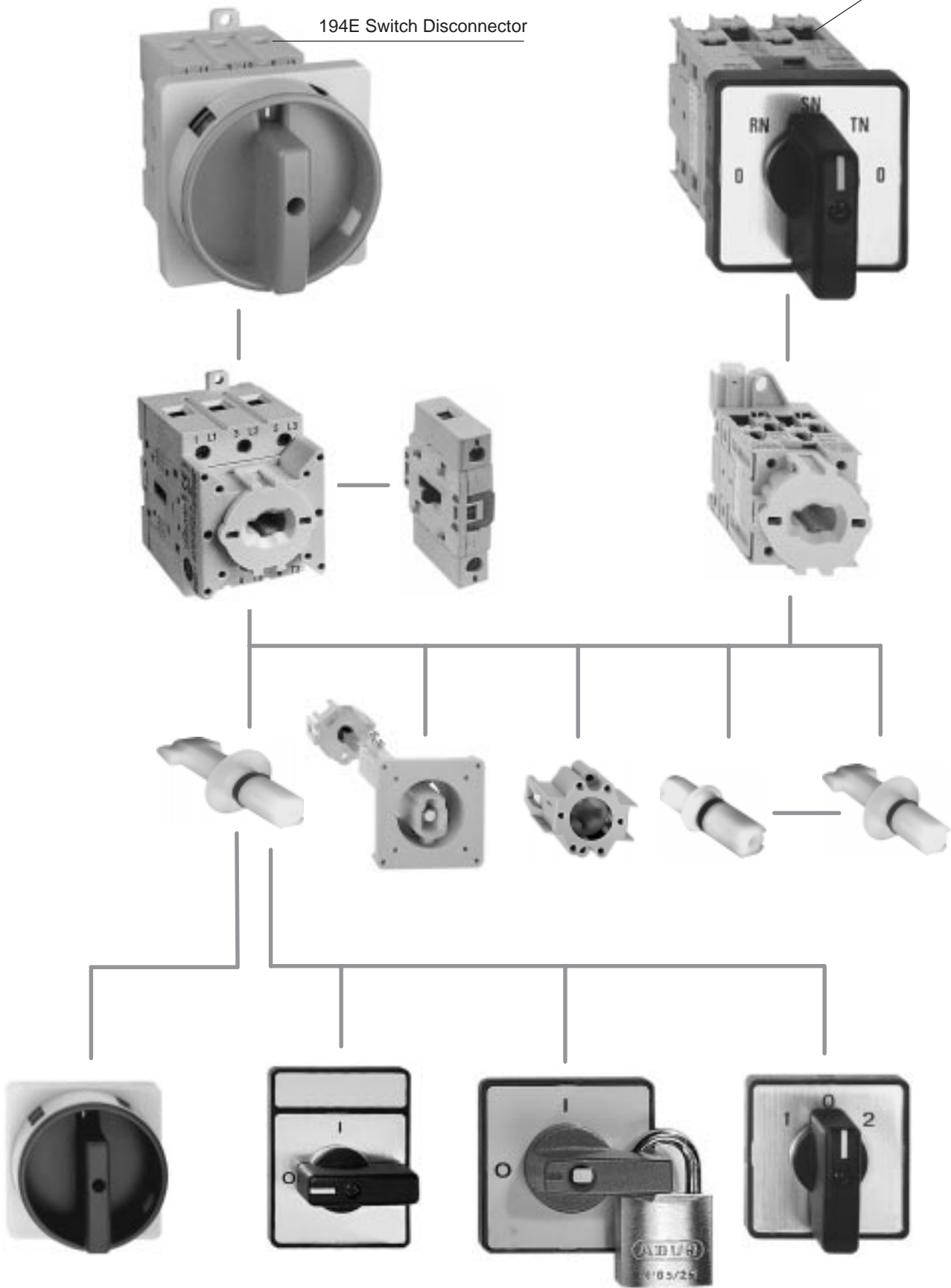
- Rated Currents up to 100 A
- Wide Choice of Functions and Switch Positions
- Screw and Central Fixture
- Front or Basic Mounting
- Fingerproof Switch Body (IP20)
- Water Spray and Dust-Proof Actuators (IP65)
- Easily Accessible Terminals
- Clearly Marked Terminals
- Wide Assortment of Accessories

# Control and Load Switches

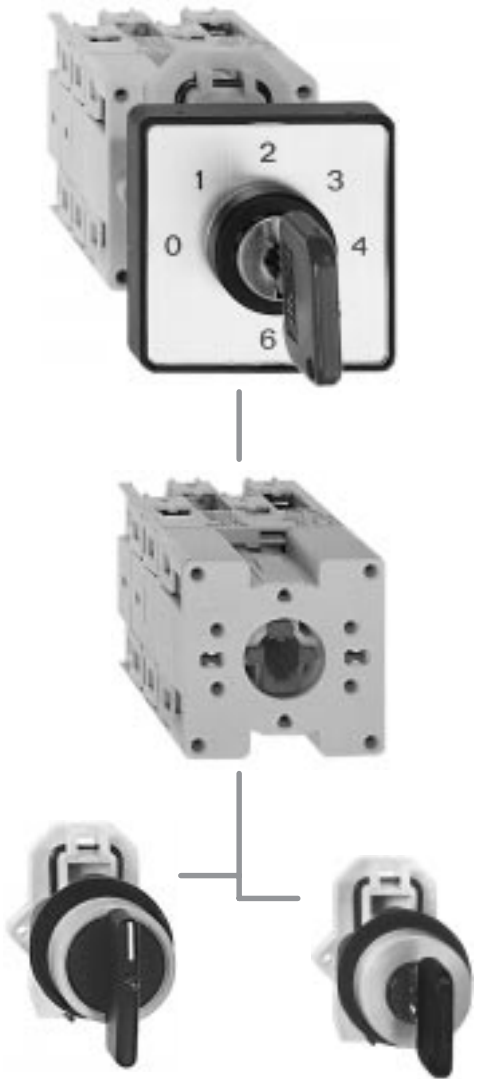
## Overview

194L / L 2 Control and Load Switch

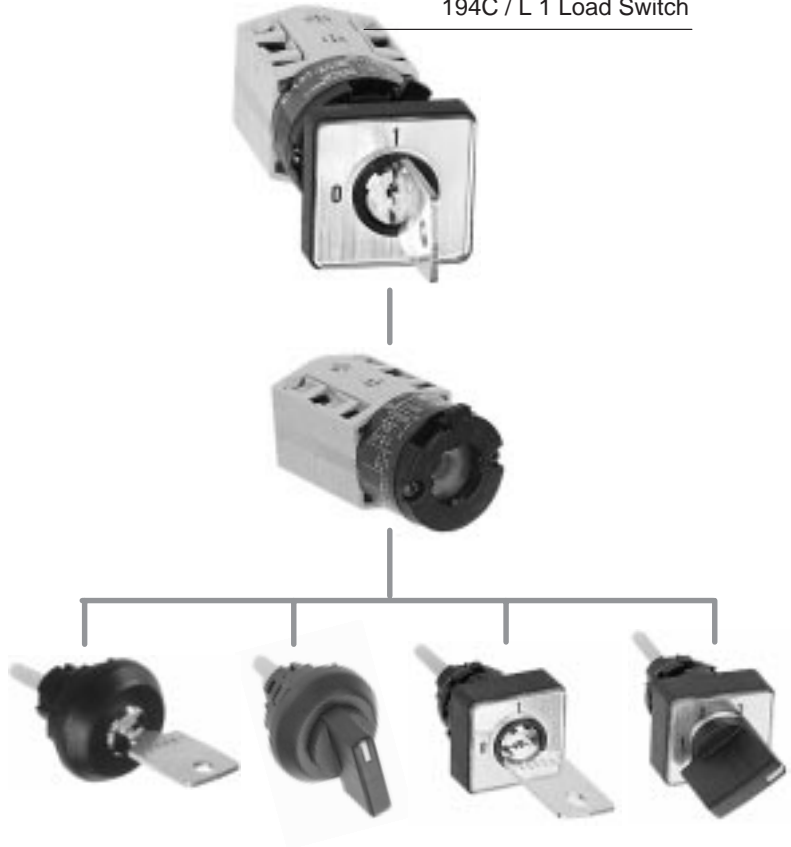
194E Switch Disconnecter



12



194C / L 1 Load Switch



194L-A / LA 2 Control and Load Switch  
for Standard Distribution Panels with  
DIN Cut-out



194EY Enclosure with Switch Disconnect

# Control and Load Switches

## Product Description



ON-OFF Switch  
194C / L 1



ON-OFF Switch  
194L / L 2



ON-OFF Switch  
194E



ON-OFF Switch  
194E



Reversing Switch  
194L / L 2



Ammeter Selector Switch  
194L / L 2



Voltmeter Selector Switch  
194L / L 2



Step Switch  
194L / L 2

### Control and Load Switch

The control switch 194C / L 1, the control and load switch 194L / L 2 and the load switch 194E are flexible, adaptable, time and space saving devices. These switches can be front mounted (door) or base/DIN rail installed. Control and load switches satisfy a broad range of applications, offer product flexibility, and have an attractive family appearance. The switch design and the many possible combinations make control and load switches adaptable to most applications.

### ON-OFF Switch

Two position switch used to connect and disconnect any electrical supply. They are used in variety of control and power switching applications. Control applications include: energizing solenoids, actuators, valves, magnetic starters and relays. Power applications include: manual control of direct-on-line motors and isolation of motor branch circuits.

### Changeover Switch

Three position switch used in power applications to change between alternate electrical supplies. These devices are typically used to switch the power supply from the primary source to a stand-by generator or emergency supply in the event of a power outage.

### Star-Delta Switch

Three-position (OFF, star-delta) switch used to manually control the reduced voltage starting of the motor. Operating the switch changes the wiring configuration to the motor from a star configuration to a delta configuration once the controller operator determines the motor is up to speed.

### Reversing Switch

Three position (OFF; star-delta) switch used to manually control the direction of rotation of a motor. Operating the switch changes the wiring configuration to the motor to operate in the forward or reverse direction.

### Ammeter Selector Switch

Multi-position switch used to connect one or more phases of the electrical supply to an ammeter, so that the current in each phase can be displayed on the ammeter.

### Voltmeter Selector Switch

Multi-position switch used to connect two lines of the electrical supply system to a voltmeter, so that the voltage can be displayed on the voltmeter.

### Step Switch

Multi-position switch used to connect a variety of loads to an electrical supply in a pre-determined logical sequence. A typical application would be temperature control of a heating oven or furnace.

### Switch Disconnect

Conform to the isolation requirements for disconnectors. This provide on-load making and breaking functions as well as the isolation function.

## AC-21A Switching of resistive loads with slight overload according to IEC / VDE / BS

440 V [A]	690 V [A]	Type	See page below for	
			ON/OFF	Changeover
10	–	194C-10 / L 1-10	12-12	12-12
–	12	194L-12 / L 2-12	12-18	12-20
–	16	194L-16 / L 2-16	12-18	12-20
–	20	194L-20 / L 2-20	12-18	12-20
–	25	194L-25 / L 2-25	12-18	12-20
–	25	194E-25	12-38	
–	32	194E-32	12-38	
–	40	194E-40	12-38	
–	63	194E-63	12-38	
–	80	194E-80	12-38	
–	100	194E-100	12-38	

## AC-23A Occasional switching of motors or other highly inductive loads

3-phase / 3 pole				Single phase / 2 pole			See page below		
220...240 V [kW]	380...440 V [kW]	500 V [kW]	690 V [kW]	110 V [kW]	220...240 V [kW]	380...440 V [kW]	Type	ON/OFF	Changeover
1.8	3	–	–	0.37	0.75	1.1	194C-10 / L 1-10	12-12	12-12
2.2	4	5.5	5.5	0.75	1.3	2.2	194L-12 / L 2-12	12-18	12-20
3	5.5	7.5	7.5	1.1	2.2	3.7	194L-16 / L 2-16	12-18	12-20
4.5	7.5	10	8	1.2	2.5	4.5	194L-20 / L 2-20	12-18	12-20
5.5	11	13	11	1.6	3.2	5.5	194L-25 / L 2-25	12-18	12-20
7.5	11	–	11	–	–	–	194E-25	12-38	
11	15	–	15	–	–	–	194E-32	12-38	
15	18.5	–	18.5	–	–	–	194E-40	12-38	
18.5	22	–	22	–	–	–	194E-63	12-38	
22	37	–	37	–	–	–	194E-80	12-38	
30	45	–	45	–	–	–	194E-100	12-38	

DC-1 / DC-21A Switching of resistive loads,  $T \leq 1$  ms (1 Contact in Series)

24 V [A]	48 V [A]	60 V [A]	110 V [A]	220 V [A]	440 V [A]	Type	See page below for	
							ON/OFF	Changeover
10	6	2.5	0.7	0.3	0.2	194C-10 / L 1-10	12-12	12-12
12	10	8	2	0.5	0.35	194L-12 / L 2-12	12-18	12-20
16	12	10	2.5	0.6	0.4	194L-16 / L 2-16	12-18	12-20
20	16	12	4	0.7	0.45	194L-20 / L 2-20	12-18	12-20
22	18	14	5	0.8	0.5	194L-25 / L 2-25	12-18	12-20

# Control and Load Switches

## Complete Switches

### Main Switches / EMERGENCY OFF Switches



- 3 and 4 pole versions
- Yellow legend plate and red knob
- Provision for locking with 3 padlocks
- Dimensions 67 x 67 mm
- Finger proof switch body

#### 3 pole

Function Switching angle	Diagram	Rated current at AC-21A / 500 V [A]	Rated power at AC-23A / 400 V [kW]	Allen-Bradley Cat. No.	Sprecher+Schuh Type Ref.	Index	
For front installation 		12	4	194L-E12-1753-6N	LE 2-12-1753-N6	1	
		16	5.5	194L-E16-1753-6N	LE 2-16-1753-N6	2	
		20	7.5	194L-E20-1753-6N	LE 2-20-1753-N6	3	
		25	11	194L-E25-1753-6N	LE 2-25-1753-N6	4	
	For base mounting 		25	11	194E-E25-1753-6N	—	5
			32	15	194E-E32-1753-6N	—	6
			40	18.5	194E-E40-1753-6N	—	7
			63	22	194E-E63-1753-6N	—	8
			80	37	194E-E80-1753-6N	—	9
			100	45	194E-E100-1753-6N	—	10
For front installation 		12	4	194L-A12-1753-6N	LA 2-12-1753-N6	11	
		16	5.5	194L-A16-1753-6N	LA 2-16-1753-N6	12	
		20	7.5	194L-A20-1753-6N	LA 2-20-1753-N6	13	
		25	11	194L-A25-1753-6N	LA 2-25-1753-N6	14	
	For base mounting 		25	11	194E-A25-1753-6N	—	15
			32	15	194E-A32-1753-6N	—	16
			40	18.5	194E-A40-1753-6N	—	17
			63	22	194E-A63-1753-6N	—	18
			80	37	194E-A80-1753-6N	—	19
			100	45	194E-A100-1753-6N	—	20

#### 4 pole

Function Switching angle	Diagram	Rated current at AC-21A / 500 V [A]	Rated power at AC-23A / 400 V [kW]	Allen-Bradley Cat. No.	Sprecher+Schuh Type Ref.	Index
For front installation 		12	4	194L-E12-1754-6N	LE 2-12-1754-N6	21
		16	5.5	194L-E16-1754-6N	LE 2-16-1754-N6	22
		20	7.5	194L-E20-1754-6N	LE 2-20-1754-N6	23
		25	11	194L-E25-1754-6N	LE 2-25-1754-N6	24
		For base mounting 		12	4	194L-A12-1754-6N
16	5.5			194L-A16-1754-6N	LA 2-16-1754-N6	26
20	7.5			194L-A20-1754-6N	LA 2-20-1754-N6	27
25	11			194L-A25-1754-6N	LA 2-25-1754-N6	28

**Series Q**



- For distribution panels with standard 45 mm cut-outs
- Uniform overall depth of 69 mm
- Dimensions matched to other switching and protection devices
- Finger-proof switch (IP20)


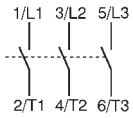
Function Switching angle	Diagram	Rated current at AC-21A [A]	No. of Poles	Switch blanks	Allen-Bradley Cat. No.	Sprecher+Schuh Type Ref.	Index
<b>ON/OFF switches</b>  		12	1	3	194L-A12-1751-Q	LA 2-12-1751-Q	<b>29</b>
		12	2	3	194L-A12-1752-Q	LA 2-12-1752-Q	<b>30</b>
		12	3	3	194L-A12-1753-Q	LA 2-12-1753-Q	<b>31</b>
		12	4	3	194L-A12-1754-Q	LA 2-12-1754-Q	<b>32</b>
		12	6	3	194L-A12-1756-Q	LA 2-12-1756-Q	<b>33</b>
		16	1	3	194L-A16-1751-Q	LA 2-16-1751-Q	<b>34</b>
		16	2	3	194L-A16-1752-Q	LA 2-16-1752-Q	<b>35</b>
		16	3	3	194L-A16-1753-Q	LA 2-16-1753-Q	<b>36</b>
		16	4	3	194L-A16-1754-Q	LA 2-16-1754-Q	<b>37</b>
		16	6	3	194L-A16-1756-Q	LA 2-16-1756-Q	<b>38</b>
<b>Changeover switches</b>  		12	1	3	194L-A12-3251-Q	LA 2-12-3251-Q	<b>39</b>
		12	2	3	194L-A12-3252-Q	LA 2-12-3252-Q	<b>40</b>
		12	3	3	194L-A12-3253-Q	LA 2-12-3253-Q	<b>41</b>
		16	1	3	194L-A16-3251-Q	LA 2-16-3251-Q	<b>42</b>
		16	2	3	194L-A16-3252-Q	LA 2-16-3252-Q	<b>43</b>
		16	3	3	194L-A16-3253-Q	LA 2-16-3253-Q	<b>44</b>
<b>Voltmeter selector switches</b>  		12	-	3	194L-A12-8271-Q	LA 2-12-8271-Q	<b>45</b>
					194L-A12-8271-QA	LA 2-12-8271-QA	<b>46</b>
					194L-A12-8251-Q	LA 2-12-8251-Q	<b>47</b>
					194L-A12-8251-QA	LA 2-12-8251-QA	<b>48</b>
<b>Ammeter selector switches</b>  		12	1	3	194L-A12-8751-Q	LA 2-12-8751-Q	<b>49</b>



**194E Serie B Load Switches, Type Q for Installation in Distribution Cubicle**


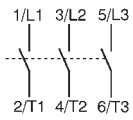


- For distribution panels with standard 45 mm cut-outs
- Uniform overall depth of 60 mm
- Finger-proof switch (IP 20)

Function Switching angle	Diagram	Rated current at AC-21A / 500 V [A]	Rated power at AC-23A / 400 V [kW]	Allen-Bradley Cat. No.	Index
For base mounting 		25	11	194E-A25-1753-Q 194E-A32-1753-Q	50 51
		32	15		

**194E Series B Load Switches / EMERGENCY-OFF Switches, Type R for Installation in Distribution Cubicle**

- For distribution panels with standard 45 mm cut-outs
- Uniform overall depth of 60 mm
- Finger-proof switch (IP20)
- Yellow legend plate and red knob
- Provision for locking with 1 padlock

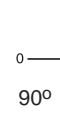
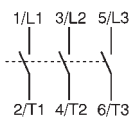
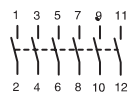
Function Switching angle	Diagram	Rated current at AC-21A / 500 V [A]	Rated power at AC-23A / 400 V [kW]	Allen-Bradley Cat. No.	Index
For base mounting 		25	11	194E-A25-1753-R 194E-A32-1753-R	52 53
		32	15		

**194E Series B Load Switches in Enclosure for Base Mounting**



- Yellow legend plate and red knob
- Provision for locking with 3 padlocks
- Cover interlocked when switch is in ON position
- Ground and neutral terminals mounted in base of enclosure
- Cover can only be fitted one way round
- Large wiring space and two-point mounting with slots
- Protection Class IP65
- Finger-proof switch body conforming to (IP20)

12

Function Switching angle	Diagram	Pole	Rated current at AC-21A / 500 V [A]	Rated power at AC-23A / 400 V [kW]	Allen-Bradley Cat. Nr.	Index
For base mounting 		3	25	11	194E-Y25-1753-6N	54
			32	15	194E-Y32-1753-6N	55
			40	18.5	194E-Y40-1753-6N	56
			63	22	194E-Y63-1753-6N	57
			80	37	194E-Y80-1753-6N	58
			100	45	194E-Y100-1753-6N	59
		6	25	11	194E-Y25-1756-6N	60
			32	15	194E-Y32-1756-6N	61
			40	18.5	194E-Y40-1756-6N	62
			63	22	194E-Y63-1756-6N	63



# Control Switches Bulletin 194C / L 1



Overview .....	12-3
Product Description .....	12-4
Preselection .....	12-5
Individual Components: Type Designation.....	12-10
Individual Components: Product Selection	
ON/OFF Switches .....	12-11
Changeover Switches .....	12-11
Step Switches .....	12-12
Voltmeter Selector Switches .....	12-13
Ammeter Selection Switches .....	12-13
Accessories .....	12-39
Technical Information .....	12-49
Approvals and Standards .....	12-52
Dimensions .....	12-56

## Ordering Advice:

For Allen-Bradley branded products choose the Allen-Bradley Cat. No.

For Sprecher+Schuh branded products choose the Sprecher+Schuh Ref. or Art. No.

# Control and Load Switches

## Individual Components: Type Designation

### Switch Bodies



194C-C10 / LC 1-10

For front installation






	Sprecher+Schuh			Allen-Bradley		
Switch bodies with central fixture Ø16mm, Ø22mm	LFC 1-10	-		194C-C10	-	
Circuit Diagram No. (Enter from selection tables on pages 12-11 ... 12-13)			xxxx			xxxx



### Actuators with Escutcheons

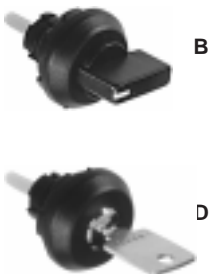


For front installation acc. to Protection Class IP65






	Sprecher+Schuh			Allen-Bradley		
Actuators with central fixture Ø16mm, Ø22mm	LFC 1	-	3	194C-HC	3	-
<b>Standard version, type A</b> Black front frame 30x30 mm black knob, silver-grey legend plate 30x30 mm	A			A		
<b>Lock Actuator, type C</b> Withdrawal position: 	CA				CA	
Black front frame 30x30 mm	CB				CB	
Silver-grey legend plate 30x30 mm	CF				CF	
KABA-lock No. EG 0021	CG				CG	
Inscription-No. (Enter from selection tables on pages 12-11 ... 12-13) Actuators without legend plates			xxxz <sup>1</sup> 001			xxxz <sup>1</sup> 001

<sup>1</sup> The letter "z" denotes a different inscription for the same circuit (e.g. 175 I for ON/OFF instead of 175 for 0-1)

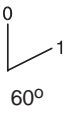
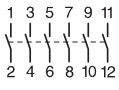

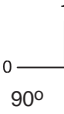
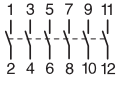


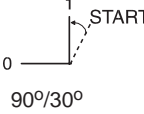
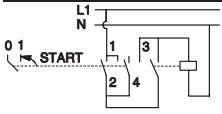


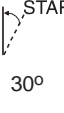




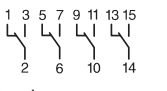
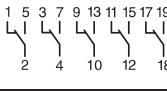

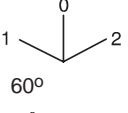
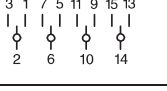


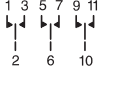

### Actuators without Escutcheons



For front installation acc. to Protection Class IP65

	Sprecher+Schuh			Allen-Bradley		
Actuators with central fixture Ø16mm, Ø22mm	LFC 1	-	001	194C-HC	-	001
<b>Standard version, type B</b> Black front ring ø 29.5 mm black knob, without legend plate	B			B		
<b>Lock Actuator, type D</b> Withdrawal position: 	DA				DA	
Black front ring ø 29.5 mm	DB				DB	
without legend plate	DF				DF	
KABA-lock No. EG 0021	DG				DG	

**Switch Body and Actuator Combinations**

Switch Bodies		for front installation				Actuators						
		Allen-Bradley		194C-C10-		Allen-Bradley		194C-HC				
Function Switching angle		Sprecher+Schuh		LC 1-10-		Sprecher+Schuh		LFC 1-				
		No. of poles	Switch banks	Circuit Diagram No.	Index	Switch position	Escut.	No. of Leg Pl.	A- Index	B- Index	C- Index	D- Index
						All	none	001		064		065
<b>ON/OFF switches</b>												
 60°	 1 3 5 7 9 11 2 4 6 8 10 12	1	1	1501	<b>66</b>			001 150	72	•	73	•
		2	1	1502	<b>67</b>							
		3	2	1503	<b>68</b>							
		4	2	1504	<b>69</b>							
		5	3	1505	<b>70</b>							
		6	3	1506	<b>71</b>							
 90°	 1 3 5 7 9 11 2 4 6 8 10 12	1	1	1751	<b>74</b>			001 175	80	•	81	•
		2	1	1752	<b>75</b>							
		3	2	1753	<b>76</b>							
		4	2	1754	<b>77</b>							
		5	3	1755	<b>78</b>							
		6	3	1756	<b>79</b>							
	1 pole leading	4	2	1764	<b>82</b>			175I	83	•	84	•
 90°/30°	 L1 N 0 1 START 1 3 2 4	1	1	9751	<b>85</b>			001 975	86	•		•
		1	1	9001	<b>87</b>			001 900	88	•		•
 30°	 1 2	1	1	9011	<b>89</b>			001 901	90	•		•
		1	1	9021	<b>91</b>			001 902	92	•		•
 60°	<b>1 ... 4 Pole</b>  1 3 5 7 9 11 13 15 2 4 6 8 10 12 14  <b>5 pole</b>  1 5 3 7 9 13 11 15 17 19 2 4 6 8 10 12 14 18	1	1	2501	<b>93</b>			001 250	097	•		
		2	2	2502	<b>94</b>							
		3	3	2503	<b>95</b>							
		4	4	2504	<b>96</b>							
		5	5	2505	<b>98</b>							
		1	1	3501	<b>99</b>							
 60°	 3 1 7 5 11 9 15 13 2 4 6 8 10 12 14	2	2	3502	<b>100</b>			001 350	103	•	104	•
		3	3	3503	<b>101</b>							
		4	4	3504	<b>102</b>							
		1	1	3001	<b>105</b>							
 30°	 1 3 5 7 9 11 2 4 6 8 10	2	2	3002	<b>106</b>			001 300	108	•		•
		3	3	3003	<b>107</b>							

# Control and Load Switches

## Individual Components: Product Selection

### Switch Body and Actuator Combinations

Switch Bodies		for front installation				Actuator						
		Allen-Bradley		194C-C10-		Allen-Bradley		194C-HC				
Function Switching angle		Sprecher+Schuh		LC 1-10-		Sprecher+Schuh		LFC 1-				
		No. of poles	Switch banks	Circuit Diagram No.	Index	Switch	Escut.	No. of Leg Pl.	A- Index	B- Index	C- Index	D- Index
						All	none	001		109		110
<b>Step switches</b>												
		1	2	4501	111			001	112	•		•
		2	3	4502	113			001	112	•		•
		3	5	4503	114			001	112	•		•
		1	2	4511	115			001	118	•		•
		2	4	4512	116			001	118	•		•
		3	6	4513	117			001	118	•		•
		1	3	4521	119			001	120	•		•
		1	3	4531	121			001	122	•		•
		1	1	5501	123			001	126	•	127	•
		2	2	5502	124			001	126	•	127	•
		3	3	5503	125			001	126	•	127	•
		1	2	5261	128			001	129	•	130	•
		2	3	5262	131			001	129	•	130	•
		3	5	5263	132			001	129	•	130	•
		1	2	5001	133			001	136	•	137	•
		2	4	5002	134			001	136	•	137	•
		3	6	5003	135			001	136	•	137	•
		1	3	5011	138			001	141	•	142	•
		2	5	5012	139			001	141	•	142	•
		3	8	5013	140			001	141	•	142	•
		1	4	5021	143			001	145	•	146	•
		2	7	5022	144			001	145	•	146	•

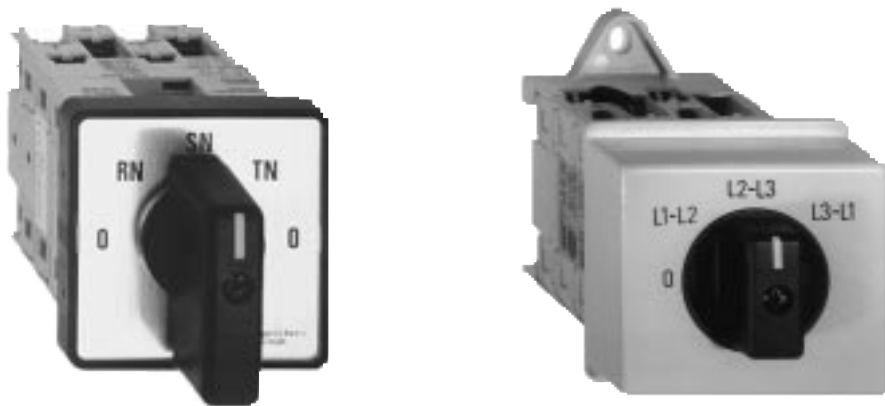
Accessories – Page 12-39  
 Technical Information – Page 12-49  
 Dimensions – Page 12-56

**Switch Body and Actuator Combinations**

Switch bodies		for front installation				Actuator						
		Allen-Bradley		194C-C10-		Allen-Bradley		194C-HC				
Function Switching angle		Sprecher+Schuh		LC 1-10-		Sprecher+Schuh		LFC 1-				
		No. of poles	Switch banks	Circuit diagram No.	Index	Switch position	Escut.	No. of Leg. Pl.	A- Index	B- Index	C- Index	D- Index
						All	None	001		147		148
<b>Voltmeter selector switches</b>												
<p>45°</p>		1	3	8251	149			001 825	150	•		•
<p>45°</p>		2	4	8271	152			001 827	153	•		•
<p>45°</p>		2	8	8291	155			001 829	156	•		•
<b>Ammeter selector switches</b>												
<p>90°</p>		1	4	8751	158			001 875	160	•		•
<p>90°</p>		2	6	8752	159							
<p>90°</p>		1	4	8761	161			001 876	162	•		•
<p>90°</p>		1	1	8771	163			001 178	164	•		•



# Control and Load Switches Bulletin 194L / L 2



## Ordering Advice:

For Allen-Bradley branded products choose the Allen-Bradley Cat. No.

For Sprecher+Schuh branded products choose the Sprecher+Schuh Ref. or Art. No.

Overview .....	12-2
Product Description .....	12-4
Preselection .....	12-5
Complete Switches	
Main switches / EMERGENCY OFF switches 194L / L 2 .....	12-6
Series Q .....	12-7
Individual Components: Type Designation .....	12-16
Individual Components: Product Selection	
ON/OFF switches .....	12-18
Changeover switches .....	12-20
Step switches .....	12-20
Star-delta switches .....	12-24

Star-delta reversing switches .....	12-26
Dahlander switches .....	12-26
Reversing switches .....	12-26
Starters .....	12-28
Voltmeter selector switches .....	12-28
Ammeter selector switches .....	12-30
Group switches .....	12-30
Special switches .....	12-32
Accessories .....	12-39
Technical Information .....	12-49
Approvals and Standards .....	12-52
Dimensions .....	12-57



# Control and Load Switches

## Individual Components: Type Designation

### Switch Bodies



For front installation	Sprecher+Schuh			Allen-Bradley		
<b>Switch bodies with screw fixing</b> (also for central fixture in conjunction with actuators 194L-HC / LFC 2)	LE 2	-	-	194L-E	-	-
<b>For base mounting</b>						
<b>Switch body with screw fixing or for clipping onto top hat rail EN 50 022-35</b> (incl. door linkage: ON/OFF switch with door interlock)	LA 2	-	-	194L-A	-	-
<b>Rated operating current of the switching elements</b>	12 A	12		12		
	16 A	16		16		
	20 A	20		20		
	25 A	25		25		
<b>Circuit diagram No.</b> (Enter from selection lists on pages 12-18...12-31)			XXXX			XXXX



### Actuators



Protection Class IP65						
		Sprecher+Schuh			Allen-Bradley	
<b>Actuators with 22.5 mm centre hole fixing</b> for 194L-E / LE 2 switches		LFC 2	-	-	194L-HC	-
<b>Standard version, type A</b> Black front frame, black knob silver-grey legend plate 48x48 mm		A-4			4A	
<b>Standard version, type B</b> Front ring, black knob, without legend plate		B	001		B	001
<b>Lock Actuator, type C</b> Withdrawal position:	⊙	CC-4		⊙	4CC	
Black front frame silver-grey legend plate 48x48 mm RONIS lock No. 152	⊖	CD-4		⊖	4CD	
	⊕	CG-4		⊕	4CG	
	⊗	CH-4		⊗	4CH	
	⊘	CK-4		⊘	4CK	
<b>Lock Actuator, type D</b> Withdrawal position:	⊙	DC	001	⊙	DC	001
Black front frame, without legend plate RONIS lock No. 152	⊖	DD	001	⊖	DD	001
	⊕	DG	001	⊕	DG	001
	⊗	DH	001	⊗	DH	001
	⊘	DK	001	⊘	DK	001
<b>Main switch, type E</b> Black front frame and knob, provision for locking with 1 padlock with silver-grey legend plate 48x48 mm		E-4			4E	
<b>EMERGENCY-OFF, type I</b> Black front frame, red knob and yellow legendplate 48x48 mm		I-4			4I	
<b>Main switch / EMERGENCY OFF switch, type L</b> Black frame, red knob, provision for locking with 1 padlock with silver-grey legend plate 48x48 mm		L-4			4L	
<b>Inscription No.</b> (Enter from selection tables on pages 12-18...12-31)			xxxz❶			xxxz❶
Actuators without legend plate			001			001

Special switches on pages 12-32 und 12-33

❶ The letter "z" denotes a different inscription for the same circuit (e.g. 175 I for ON/OFF instead of 175 for 0-1)

**Actuators**



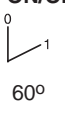
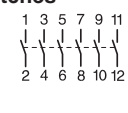

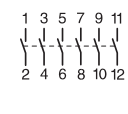

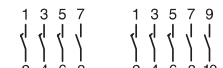
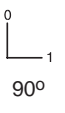
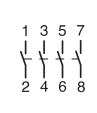
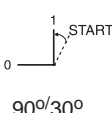
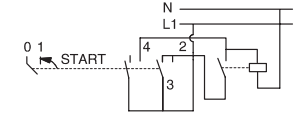
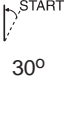
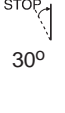
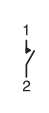
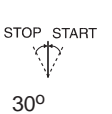

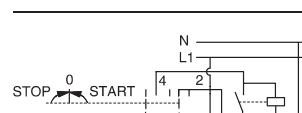
		Protection Class IP65		
		Sprecher+Schuh		Allen-Bradley
	<b>Actuator with screw fixing</b> for 194L-E / LE 2 and 194L-A / LA 2 switches	LFS 2	-	194L-HE
	<b>Standard version, type A</b> Black front frame, black knob with silver-grey legend plate 48x48 mm with silver-grey legend plate 64x64 mm	A-4		4A
		A-6		6A
	<b>Main switch, type E</b> Black front frame, black knob, provision for locking with 1 padlock with silver-grey legend plate 48x48 mm with silver-grey legend plate 64x64 mm	E-4		4E
		E-6		6E
	<b>Main switch, type G</b> Grey legend plate with black knob provision for locking with 3 padlocks: 67x67 mm	G-6		6G
	<b>EMERGENCY OFF, type I</b> Black front frame, red knob with yellow legend plate 48x48 mm with yellow legend plate 64x64 mm	I-4		4I
		I-6		6I
	<b>Main switch / EMERGENCY OFF, type L</b> Black front frame, red knob, provision for locking with 1 padlock with yellow legend plate 48x48 mm with yellow legend plate 64x64 mm	L-4		4L
		L-6		6L
	<b>Main switch / EMERGENCY OFF switch, type N</b> Yellow legend plate, red knob, provision for locking with 3 padlocks, Size: 67x67 mm	N-6		6N
	<b>With 45 mm distribution panel cut-out, type P</b> Grey cap, black knob, Size: 45x54 mm	P-4		4P
	<b>With 45 mm distribution panel cut-out, total depth 69 mm, type Q</b> Grey cap, black knob (see page 12-7) For rated currents 12 and 16 A with up to 6 poles			
	<b>Standard switch, type A, with silver-grey label, type S</b> Black front frame, silver-grey legend plate, black knob with silver-grey legend plate 48x62 mm with silver-grey legend plate 64x78 mm	S-4		4S
		S-6		6S
	<b>Inscription No.</b> (Enter from selection tables on pages 12-18...12-31)		xxxz <sup>❶</sup>	xxxz <sup>❶</sup>
	Actuators without legend plates		001	001

❶ The letter "z" denotes a different inscription for the same circuit (e.g. 175 I for ON/OFF instead of 175 for 0-1)

# Control and Load Switches











## Individual Components: Product Selection

### Switch Body and Actuator Combinations

Switch bodies					for front installation				for base mounting				
Function Switching angle	Diagram	No. of poles	Switch banks	Circuit Diagram No.	Allen-Bradley		194L-E	Allen-Bradley		194L-A			
					Sprecher+Schuh		LE 2-	Sprecher+Schuh		LA 2-			
					12- Index	16- Index	20- Index	25- Index	12- Index	16- Index	20- Index	25- Index	
<b>ON/OFF switches</b>													
 60°		1	1	1501	165	171	177	183					
		2	1	1502	166	172	178	184					
		3	2	1503	167	173	179	185					
		4	2	1504	168	174	180	186					
		5	3	1505	169	175	181	187					
		6	3	1506	170	176	182	188					
 90°		1	1	1751	189	195	201	207	213	219	225	231	
		2	1	1752	190	196	202	208	214	220	226	232	
		3	2	1753	191	197	203	209	215	221	227	233	
		4	2	1754	192	198	204	210	216	222	228	234	
		5	3	1755	193	199	205	211	217	223	229	235	
		6	3	1756	194	200	206	212	218	224	230	236	
	1 pole leading		4	2	1764	237	238	239	240	241	242	243	244
													
	3 poles leading		4	2	1774	245	247	249	251	253	255	257	259
													
 90°		1	1	1781	261	265	269	273	277	281	285	289	
		2	1	1782	262	266	270	274	278	282	286	290	
		3	2	1783	263	267	271	275	279	283	287	291	
		4	2	1784	264	268	272	276	280	284	288	292	
 90°/30°		1	1	9751	293	294	295	296	297	298	299	300	
		 30°	1	1	9001	301	302	303	304	305	306	307	308
 30°			1	1	9011	309	310	311	312	313	314	315	316
		 30°	1	1	9021	317	318	319	320	321	322	323	324
 45°			1	1	9251	325	326	327	328	329	330	331	332

12

Accessories – Page 12-39  
 Technical Information – Page 12-49  
 Dimensions – Page 12-57

Actuators			for screw fixing							for central fixture							
			Allen-Bradley			194L-HE				Allen-Bradley			194L-HC				
			Sprecher+Schuh			LFS2-				Sprecher+Schuh			LFC2-				
Switch position	Escutcheon size	No. of Leg. Pl.	A-	E-	G-	I-	L-	N-	P-	S-	A-	B-	C-	D-	E-	I-	L-
			Index	Index	Index	Index	Index	Index	Index	Index	Index	Index	Index	Index	Index	Index	Index
All	None	001										333		334			
	4 6	001 150 150	335 336 337	338 339 340		341 342					343	•	344	•			
	4 6	001 175 175	345 346 347	350 351 352	355	356 357	358	359	360	361 362		•	364	•	366	368	370
	4 6	175I 175I	348 349	353 354							363		365		367	369	371
 	4 6 4 6	001 178 178 178I 178I	372 373 374 375 376	377 378 379 380 381	① ①			② ②			382 383	•	384	•			
	4 6	001 975 975	386 387 388	389 390 391							392	•		•			
	4 6	001 900 900	393 394 395	396 397 398							399	•		•			
	4 6	001 901 901	400 401 402	403 404 405							406	•		•			
	4 6	001 902 902	407 408 409	410 411 412							413	•		•			
	4 6	001 925 925	414 415 416	417 418 419							420	•		•			

① Use Type LFS 2-G-6-175/175I / 194L-HE6G-175/175I


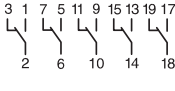

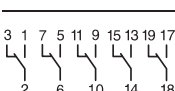









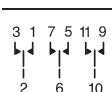

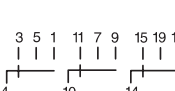

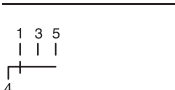
② Use Type LFS 2-N-6-175/175I / 194L-HE6N-175/175I

Accessories – Page 12-39  
 Technical Information – Page 12-49  
 Dimensions – Page 12-57

# Control and Load Switches











## Individual Components: Product Selection

### Switch Body and Actuator Combinations

Switch bodies					for front installation				for base mounting			
Function Switching angle	Diagram	No. of poles	Switch banks	Circuit diagram No.	Allen-Bradley				Allen-Bradley			
					Sprecher+Schuh				Sprecher+Schuh			
					12- Index	16- Index	20- Index	25- Index	12- Index	16- Index	20- Index	25- Index
<b>Changeover switches</b>												
 60°		1	1	2501	421	426	431	436				
		2	2	2502	422	427	432	437				
		3	3	2503	423	428	433	438				
		4	4	2504	424	429	434	439				
		5	5	2505	425	430	435	440				
 45°		1	1	2251	441	446	451	456	461	463	465	
		2	2	2252	442	447	452	457	462	464	466	
		3	3	2253	443	448	453	458				
		4	4	2254	444	449	454	459				
		5	5	2255	445	450	455	460				
 60°		1	1	3501	467	471	475	479				
		2	2	3502	468	472	476	480				
		3	3	3503	469	473	477	481				
		4	4	3504	470	474	478	482				
 45°		1	1	3251	483	487	491	495	499	503	507	
		2	2	3252	484	488	492	496	500	504	508	
		3	3	3253	485	489	493	497	501	505	509	
		4	4	3254	486	490	494	498	502	506	510	
 90°		1	1	3751	511	515	519	523				
		2	2	3752	512	516	520	524				
		3	3	3753	513	517	521	525				
		4	4	3754	514	518	522	526				
 30°		1	1	3001	527							
		2	2	3002	528							
		3	3	3003	529							
 45°		1	1	3261	530							
		2	2	3262	531							
		3	3	3263	532							
 60°		1	2	4501	533	536	539	542				
		2	3	4502	534	537	540	543				
		3	5	4503	535	538	541	544				
 45°		1	2	4251	545	548	551	554	557	558	559	560
		2	3	4252	546	549	552	555				
		3	5	4253	547	550	553	556				

12

Accessories – Page 12-39  
 Technical Information – Page 12-49  
 Dimensions – Page 12-57

Actuators			for screw fixing								for central fixture							
			Allen-Bradley				194L-HE				Allen-Bradley				194L-HC			
			Sprecher+Schuh				LFS 2-				Sprecher+Schuh				LFC 2-			
Switch position	Escutcheon size	No. of Leg. Pl.	A-	E-	G-	I-	L-	N-	P-	S-	A-	B-	C-	D-	E-	I-	L-	
			Index	Index	Index	Index	Index	Index	Index	Index	Index	Index	Index	Index	Index	Index	Index	Index
All	None	001										561		562				
	4 6	001 250 250	563 564 565								566	•	567					
	4 6	001 225 225	568 569 570						571		572	•	573	•				
	4 6	001 350 350	574 575 576								577	•	578	•				
 	4 6 4 6	001 325 325 325R 325R	579 580 581 582 583						584 585	586 587	588 589	•	590 591	•				
	4 6	001 375 375	592 593 594						595		596	•	597	•				
	4 6	001 300 300	598 599 600								601	•		•				
	4 6	001 325 325	602 603 604							605 606	607	•	608	•				
	4 6	001 450 450	609 610 611								612	•	613	•				
	4 6	001 425 425	614 615 616								617	•	618	•				











# Control and Load Switches

## Individual Components: Product Selection

### Switch Body and Actuator Combinations

Switch bodies					for front installation				for base mounting			
					Allen-Bradley		194L-E	Allen-Bradley		194L-A		
					Sprecher+Schuh		LE 2-	Sprecher+Schuh		LA 2-		
Function Switching angle	Diagram	No. of poles	Switch banks	Circuit Diagram No.	12-	16-	20-	25-	12-	16-	20-	25-
					Index	Index	Index	Index	Index	Index	Index	Index
<b>Step switches</b>												
 60°		1	2	4511	619	622	625	628				
		2	4	4512	620	623	626	629				
		3	6	4513	621	624	627	630				
 45°		1	2	4261	631	634	637	640	643	644	645	646
		2	4	4262	632	635	638	641				
		3	6	4263	633	636	639	642				
 60°		1	3	4521	647	648	649	650				
 45°		1	3	4271	651	652	653	654	655	656	657	658
 60°		1	3	4531	659	660	661	662				
 45°		1	3	4281	663	664	665	666	667	668	669	670
 60°		1	1	5501	671	674	677	680				
		2	2	5502	672	675	678	681				
		3	3	5503	673	676	679	682				
 45°		1	1	5251	683	686	689	692				
		2	2	5252	684	687	690	693				
		3	3	5253	685	688	691	694				
 60°		1	2	5511	695	698	701	704				
		2	3	5512	696	699	702	705				
				5513	697	700	703	706				
 45°		1	2	5261	707	710	713	716	719	720	721	722
		2	3	5262	708	711	714	717				
				5263	709	712	715	718				

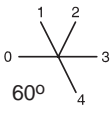
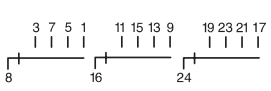
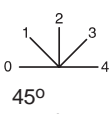
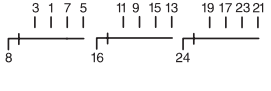
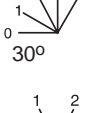
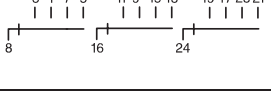
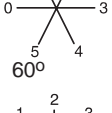
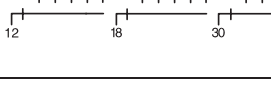
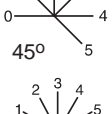
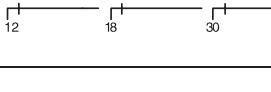
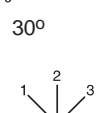
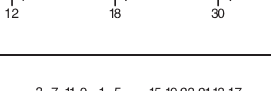
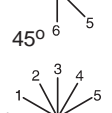
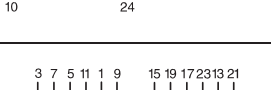
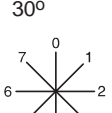

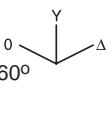



Actuators			for screw fixing								for central fixture						
			Allen-Bradley				194L-HE				Allen-Bradley			194L-HC			
			Sprecher+Schuh				LFS 2-				Sprecher+Schuh			LFC 2-			
Switch position	Escutcheon size	No. of Leg. Pl..	A-	E-	G-	I-	L-	N-	P-	S-	A-	B-	C-	D-	E-	I-	L-
			Index	Index	Index	Index	Index	Index	Index	Index	Index	Index	Index	Index	Index	Index	Index
All	None	001										723		724			
	4 6	001 451 451	725 726 727								728	•		•			
	4 6	001 426 426	729 730 731								732	•	733	•			
	4 6	001 452 452	734 735 736								737	•	738	•			
	4 6	001 427 427	739 740 741								742	•	743	•			
	4 6	001 453 453	744 745 746								747	•	748	•			
	4 6	001 428 428	749 750 751								752	•	753	•			
	4 6	001 550 550	754 755 756								757	•	758	•			
	4 6	001 525 525	759 760 761								762	•	763	•			
	4 6	001 551 551	764 765 766								767	•	768	•			
	4 6	001 526 526	769 770 771								772	•	773	•			

# Control and Load Switches













## Individual Components: Product Selection

### Switch Body and Actuator Combinations

Switch bodies					for front installation				for base mounting			
Function Switching angle	Diagram	No. of poles	Switch banks	Circuit diagram No.	Allen-Bradley		194L-E	Allen-Bradley		194L-A		
					Sprecher+Schuh		LE 2-	Sprecher+Schuh		LA 2-		
					12- Index	16- Index	20- Index	25- Index	12- Index	16- Index	20- Index	25- Index
<b>Step switches</b>												
 60°		1	2	5521	774	777	780	783				
		2	4	5522	775	778	781	784				
		3	6	5523	776	779	782	785				
 45°		1	2	5271	786	789	792	795	798	799	800	801
		2	4	5272	787	790	793	796				
		3	6	5273	788	791	794	797				
 30°		1	2	5001	802	805	808	811				
		2	4	5002	803	806	809	812				
		3	6	5003	804	807	810	813				
 60°		1	3	5531	814	817	820	823				
		2	5	5532	815	818	821	824				
		3	8	5533	816	819	822	825				
 45°		1	3	5281	826	829	832	835	838	839	840	841
		2	5	5282	827	830	833	836				
		3	8	5283	828	831	834	837				
 30°		1	3	5011	842	845	848	851				
		2	5	5012	843	846	849	852				
		3	8	5013	844	847	850	853				
 45°		1	3	5291	854	856	858	860	862	863	864	865
		2	6	5292	855	857	859	861				
		1	3	5021	866	868	870	872				
 30°		2	6	5022	867	869	871	873				
		1	3	5341	874	875	876	877				
		1	4	5341	874	875	876	877				
<b>Star-delta switches</b>												
 60°		3	4	7503	878	879	880	881				
		3	4	7253	882	883	884	885	886	887	888	889
		3	4	7323	890	891	892	893	894	895	896	897

12

Accessories – Page 12-39  
 Technical Information – Page 12-49  
 Dimensions – Page 12-57

Actuators			for screw fixing								for central fixture						
			Allen-Bradley				194L-HE				Allen-Bradley			194L-HC			
			Sprecher+Schuh				LFS 2-				Sprecher+Schuh			LFC 2-			
Switch position	Escutcheon size	No. of Leg. Pl.	A-	E-	G-	I-	L-	N-	P-	S-	A-	B-	C-	D-	E-	I-	L-
			Index	Index	Index	Index	Index	Index	Index	Index	Index	Index	Index	Index	Index	Index	Index
All	None	001										898		899			
	4 6	001 552 552	900 901 902								903	•		•			
	4 6	001 527 527	904 905 906								907	•	908	•			
	4 6	001 500 500	909 910 911								912	•		•			
	4 6	001 553 553	913 914 915								916	•		•			
	4 6	001 528 528	917 918 919								920	•	921	•			
	4 6	001 501 501	922 923 924								925	•		•			
	4 6	001 529 529	926 927 928								929	•	930	•			
	4 6	001 502 502	931 932 933								934	•		•			
	4 6	001 534 534	935 936 937								938	•	939	•			
	4 6	001 750 750	940 941 942								943	•		•			
	4 6	001 725 725	944 945 946								947	•	948	•			
	4 6	001 732 732	949 950 951								952	•		•			

# Control and Load Switches

## Individual Components: Product Selection

### Switch Body and Actuator Combinations

Switch bodies					for front installation				for base mounting			
					Allen-Bradley		194L-E	Allen-Bradley		194L-A		
					Sprecher+Schuh		LE 2-	Sprecher+Schuh		LA 2-		
Function Switching angle	Diagram	No. of poles	Switch banks	Circuit diagram No.	12-	16-	20-	25-	12-	16-	20-	25-
					Index	Index	Index	Index	Index	Index	Index	Index
<b>Star-delta switches</b>												
		3	4	7553	953	954	955	956	957	958	959	960
<b>Star-delta reversing switches</b>												
		3	5	7513	961	962	963	964				
		3	5	7283	965	966	967	968				
<b>Dahlander-switches</b>												
		3	4	7523	969	970	971	972				
		3	4	7533	973	974	975	976				
		3	4	7293	977	978	979	980	981	982	983	984
<b>Reversing switches</b>												
		3	3	7543	985	986	987	988				
		3	3	7303	989	990	991	992	993	994	995	996
		3	3	7313	997	998	999	1000	1001	1002	1003	1004
		3	3	7003	1005	1006	1007	1008				
		3	3	7342	1009	1010	1011	1012				
		2	3	7352	1013	1014	1015	1016				

Accessories – Page 12-39  
 Technical Information – Page 12-49  
 Dimensions – Page 12-57

Actuators			for screw fixing								for central fixture						
			Allen-Bradley				194L-HE				Allen-Bradley			194L-HC			
			Sprecher+Schuh				LFS 2-				Sprecher+Schuh			LFC 2-			
Switch position	Escutcheon size	No. of Leg. Pl.	A-	E-	G-	I-	L-	N-	P-	S-	A-	B-	C-	D-	E-	I-	L-
			Index	Index	Index	Index	Index	Index	Index	Index	Index	Index	Index	Index	Index	Index	Index
All	None	001										1017		1018			
	4 6	001 755 755	1019 1020 1021								1022	•		•			
	4 6	001 751 751	1023 1024 1025								1026	•		•			
	4 6	001 728 728	1027 1028 1029								1030	•		•			
	4 6	001 752 752	1031 1032 1033								1034	•		•			
	4 6	001 350 350	1035 1036 1037								1038	•	1039	•			
	4 6	001 325 325	1040 1041 1042							1043 1044	1045	•		•			
	4 6	001 350 350	1046 1047 1048								1049	•	1050	•			
	4 6	001 325 325	1051 1052 1053							1054 1055	1056	•	1057	•			
	4 6	001 325 325	1058 1059 1060							1061 1062	1063	•	1064	•			
	4 6	001 300 300	1065 1066 1067								1068	•		•			
	4 6	001 734 734	1069 1070 1071								1072	•		•			
	4 6	001 325 325	1073 1074 1075							1076 1077	1078	•		•			

# Control and Load Switches














## Individual Components: Product Selection

### Switch Body and Actuator Combinations

Switch bodies					for front installation				for base mounting			
					Allen-Bradley		194L-E	Allen-Bradley		194L-A		
					Sprecher+Schuh		LE2-	Sprecher+Schuh		LA2-		
Function Switching angle	Diagram	No. of poles	Switch banks	Circuit diagram No.	12-	16-	20-	25-	12-	16-	20-	25-
					Index	Index	Index	Index	Index	Index	Index	Index
<b>Starters</b>												
		2	2	7332	1079	1080	1081	1082				
<b>Voltmeter selector switches</b>												
		-	3	8251	1083				1084			
		-	2	8261	1085				1086			
		-	2	8271	1087				1088			
		-	2	8281	1089				1090			
		-	2	8291	1091				1092			
		-	4	8322	1093				1094			
		-	3	8332	1095							

12

Accessories – Page 12-39  
 Technical Information – Page 12-49  
 Dimensions – Page 12-57

Actuators			for screw fixing								for central fixture						
			Allen-Bradley				194L-HE				Allen-Bradley			194L-HC			
			Sprecher+Schuh				LFS 2-				Sprecher+Schuh			LFC 2-			
Switch position	Escutcheon size	No. of Leg. Pl.	A-	E-	G-	I-	L-	N-	P-	S-	A-	B-	C-	D-	E-	I-	L-
			Index	Index	Index	Index	Index	Index	Index	Index	Index	Index	Index	Index	Index	Index	Index
All	None	001										1096		1097			
	4 6	001 733 733	1098 1099 1100								1101	•		•			
	4 6	001 825 825	1102 1103 1104						1107		1109	•		•			
	4 6	825A 825A	1105 1106						1108		1110						
	4 6	001 826 826	1111 1112 1113						1114		1115	•		•			
	4 6	001 827 827	1116 1117 1118								1122	•		•			
	4 6	827A 827A	1119 1120						1121		1123						
	4 6	001 828 828	1124 1125 1126								1127	•		•			
	4 6	001 829 829	1128 1129 1130								1134	•		•			
	4 6	829A 829A	1131 1132						1133		1135						
	4 6	001 832 832	1136 1137 1138								1142	•		•			
	4 6	832A 832A	1139 1140						1141		1143						
	4 6	001 833 833	1144 1145 1146								1150	•		•			
	4 6	833A 833A	1147 1148						1149		1151						








# Control and Load Switches

## Individual Components: Product Selection

### Switch Body and Actuator Combinations

Switch bodies					for front installation				for base mounting			
					Allen-Bradley		194L-E	Allen-Bradley		194L-A		
					Sprecher+Schuh		LE 2-	Sprecher+Schuh		LA 2-		
Function Switching angle	Diagram	No. of poles	Switch banks	Circuit diagram No.	12-	16-	20-	25-	12-	16-	20-	25-
					Index	Index	Index	Index	Index	Index	Index	Index
<b>Ammeter selector switches</b>												
3 c.t.'s 		1	3	8751	1152				1154			
90°		2	5	8752	1153							
4 c.t.'s 		1	4	8761	1155				1156			
90°												
1 c.t. 		1	1	8771	1157				1158			
90°												
<b>Group switches</b>												
2 groups O-A-(A+B) 		-	1	6501	1159	1160	1161	1162				
60°												
3 groups O-A-(A+B)-(A+B+C) 		-	2	6511	1163	1164	1165	1166				
60°												

Actuators			for screw fixing								for central fixture							
			Allen-Bradley				194L-HE				Allen-Bradley				194L-HC			
			Sprecher+Schuh				LFS 2-				Sprecher+Schuh				LFC 2-			
Switch position	Escutcheon size	No. of Leg. Pl.	A-	E-	G-	I-	L-	N-	P-	S-	A-	B-	C-	D-	E-	I-	L-	
			Index	Index	Index	Index	Index	Index	Index	Index	Index	Index	Index	Index	Index	Index	Index	Index
All	None	001										1167		1168				
	4 6	001 875 875	1169 1170 1171						1172		1173	•		•				
	4 6	001 876 876	1174 1175 1176								1177	•		•				
	4 6	001 178 178	1178 1179 1180								1181	•	1182	•				
	4 6	001 550 550	1183 1184 1185								1186	•		•				
	4 6	001 551 551	1187 1188 1189								1190	•		•				

**Special Switches**

Switching specification for special versions of 194L / L 2 switches

Customer _____			Date _____					
Quantity _____		Delivery date _____		Customer order no. _____				

Legend Plate		Quantity	

Switch elements	Contacts																										
		8	31-32	29-30	7	27-28	25-26	6	23-24	21-22	5	19-20	17-18	4	15-16	13-14	3	11-12	9-10	2	7-8	5-6	1	3-4	1-2		

X Contact closed Return

X — X Contact closed in several positions

Notes					
Switch type	Rated current	Actuators			
	<b>A</b>				

Example of an order for a special version of a 194L switch

Customer <i>Müller &amp; Meier AG</i>		Date <i>10. August 1995</i>			
Quantity <i>50 St.</i>		Delivery date <i>Woche 36</i>			

Legend Plate	Quantity	
<input type="checkbox"/> 30° <input type="checkbox"/> 60° <input checked="" type="checkbox"/> 45° <input type="checkbox"/> 90°		

8	31-32				
	29-30				
7	27-28				
	25-26				
6	23-24				
	21-22				
5	19-20				
	17-18				
4	15-16				
	13-14				
3	11-12		X		
	9-10		X		
2	7-8	X	X		
	5-6	X	X		
1	3-4		X	X	
	1-2	X	X		
Switch elements	Contacts	O	M	1	A
		A	U	T	

X Contact closed      Return  
 X — X Contact closed in several positions

Notes					

Switch type			Rated current			Actuators																
1	9	4	L	-	E	1	2	A	12	1	9	4	L	-	H	E	4	A				



# Switch Disconnectors Bulletin 194E Series B



## Ordering Advice:

For Allen-Bradley branded products choose the Allen-Bradley Cat. No.

For Sprecher+Schuh branded products choose the Sprecher+Schuh Ref. or Art. No.

Overview .....	12-2
Product Description .....	12-4
Preselection .....	12-5
<b>Complete Switches</b>	
Main Switches / EMERGENCY OFF Switches .....	12-6
194E Series B Load Switches, Type Q for Installation in Distribution Cubicle .....	12-8
194E Series B Load Switches / EMERGENCY OFF switches, Type R for Installation in Distribution Cubicle ...	12-8
194E Series B Load Switches in Enclosure for Base Mounting .....	12-8
<b>Individual Components: Type Designation</b> .....	12-36
<b>Individual Components: Product Selection</b>	
ON/OFF switches .....	12-38
Changeover switches .....	12-38
<b>Accessories</b> .....	12-39
<b>Technical Information</b> .....	12-53
Standards and Approvals .....	12-55
<b>Dimensions</b> .....	12-61

**Switch Bodies**



194E-E



194E-A

**For front installation**

switch body with screw fixing	194E-E	-
-------------------------------	--------	---

**For base mounting**

Switch body with screw fixing or for clipping onto top-hat rail EN 50 022-35	194E-A	-
------------------------------------------------------------------------------	--------	---

(incl. door linkage and door interlock)

Rated operating current of the switching elements	25 A	25
	32 A	32
	40 A	40
	63 A	63
	80 A	80
	100 A	100

Circuit diagram No. (Enter from selection tables on page 12-38)		XXXX
--------------------------------------------------------------------	--	------



**Actuators for Switches 25...63 A**



A



E



G



I



L



N

Protection Class IP65

Actuators with 22.5 mm centre hole fixing 194E-E and 194E-A switches	194L-HC	-
-------------------------------------------------------------------------	---------	---

<b>Standard version, type A</b> Black front frame, black knob with silver-grey legend plate 48x48 mm	for type 25...63 A	4A
------------------------------------------------------------------------------------------------------------	-----------------------	----

<b>Main switch, type E</b> Black front frame and knob, provision for locking with 1 padlock with silver-grey legend plate 48x48 mm	25...63 A	4E
---------------------------------------------------------------------------------------------------------------------------------------------	-----------	----

<b>Main switch, type G</b> Ⓣ grey legend plate, black knob provision for locking with 3 padlocks, Size: 67x67 mm	25...63 A	6G
---------------------------------------------------------------------------------------------------------------------------	-----------	----

<b>EMERGENCY OFF switch, type I</b> black front frame, red knob with yellow legend plate 48x48 mm	25...63 A	4I
---------------------------------------------------------------------------------------------------------	-----------	----

<b>Main switch / EMERGENCY OFF switch, type L</b> black front frame, red knob, provision for locking with 1 padlock with yellow legend plate 48x48 mm	25...63 A	4L
----------------------------------------------------------------------------------------------------------------------------------------------------------------	-----------	----

<b>Main switch / EMERGENCY OFF switch, type N</b> Ⓣ yellow legend plate, red knob provision for locking with 3 padlocks Size: 67x67 mm	25...63 A	6N
-------------------------------------------------------------------------------------------------------------------------------------------------	-----------	----

Inscription No. (Enter from selection tables on page 12-38)		xxxzⓉ
-------------------------------------------------------------	--	-------

Actuators without legend plates		001
---------------------------------	--	-----

Ⓣ The letter "z" denotes a different inscription for the same circuit (e.g. 175 I for ON/OFF instead of 175 for 0-1). This does not apply to types G and N which have inscriptions for both 0-1 and ON-OFF.

Ⓣ Available from January 1998



Actuators for Switches 25...100 A

Protection Class IP65



A



E



G



I



L



N

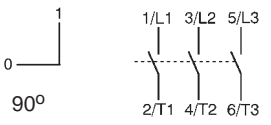




S



Actuators with screw fixing		194L-HE	-
194E-E and 194E-A switches			
<b>Standard version, type A</b>	for type		
Black front frame, black knob			
with silver-grey legend plate 48x48 mm	25...63A		4A
with silver-grey legend plate 64x64 mm	25...100A		6A
with silver-grey legend plate 88x88 mm	40...100A		8A
<b>Main switch, type E</b>			
Black front frame and knob,			
provision for locking with 1 padlock			
with silver-grey legend plate 48x48 mm	25...63A		4E
with silver-grey legend plate 64x64 mm	25...100A		6E
<b>Main switch, type G</b>			
grey legend plate, black knob			
provision for locking with 3 padlocks,			
Size: 67x67 mm	25...100A		6G
Size: 90x90 mm	40...100A		8G
<b>EMERGENCY OFF switch, type I</b>			
black front frame, red knob			
with yellow legend plate 48x48 mm	25...63A		4I
with yellow legend plate 64x64 mm	25...100A		6I
with yellow legend plate 88x88 mm	40...100A		8I
<b>Main switch / EMERGENCY OFF switch, type L</b>			
black front frame, red knob,			
provision for locking with 1 padlock			
with yellow legend plate 48x48 mm	25...63A		4L
with yellow legend plate 64x64 mm	25...100A		6L
<b>Main switch / EMERGENCY OFF switch, type N</b>			
yellow legend plate, red knob			
provision for locking with 3 padlocks			
Size: 67x67 mm	25...100A		6N
Size: 90x90 mm	40...100A		8N
<b>Standard version A with silver-grey label, type S</b>			
black front frame, silver-grey legend plate,			
black knob,			
Size: 48x62 mm	25...63A		4S
Size: 64x78 mm	25...100A		6S
<b>Inscription No.</b> (Enter from selection tables on page 12-38)			xxxz <sup>①</sup>
Actuators without legend plates			001

① The letter "z" denotes a different inscription for the same circuit (e.g. 175 I for ON/OFF instead of 175 for 0-1). This does not apply to types G and N which have inscriptions for both 0-1 and ON-OFF.

**Switch Body and Actuator Combinations**

Switch bodies				for front installation 194E-E						for base mounting 194E-A					
Function Switching angle	Diagram	No. of poles	Circuit diagram No.	25-	32-	40-	63-	80-	100-	25-	32-	40-	63-	80-	100-
				Index	Index	Index	Index	Index	Index	Index	Index	Index	Index	Index	Index
ON/OFF switches  		3	1753	1191	1192	1193	1194	1195	1196	1197	1198	1199	1200	1201	1202
		6	1756	1203	1204	1205	1206	1207	1208	1209	1210	1211	1212	1213	1214

Actuators			for central fixing 194L-HC					
Switch position	Escutch- eon size	No. of Leg. Pl.	A-	E-	G-	I-	L-	N-
			Index	Index	Index	Index	Index	Index
ON/OFF switches  	4 6 8	175	1215	1216	1217 ①	1218	1219	1220 ①
		175						
	4 6 8	175I	1221	1222		1223	1224	
		175I						

Actuators			for screw fixing 194L-HE						
Switch position	Escutch- eon size	No. of Leg. Pl.	A-	E-	G-	I-	L-	N-	S-
			Index	Index	Index	Index	Index	Index	Index
ON/OFF switches  	4 6 8	175	1225	1228	1230 ①	1232	1235	1237 ①	1239
		175							
	4 6 8	175I	1241	1244		1246	1249		1251
		175I							

① With both inscriptions 0-1 and ON/OFF.

**Legend Plate for Actuators Type A, C, E, I, L, P, S**

Legend Plate	For type	Allen Bradley Cat. No.	Sprecher+Schuh Type Ref.	Index	Legend Plate	For type	Allen Bradley Cat. No.	Sprecher+Schuh Type Ref.	Index
<b>Without Inscription</b>									
	194C / L 1	194C-C3-000	LL 1-C-3-000	<b>1253</b>		194L / L 2	194L-P4-000	LL 2-P-4-000	<b>1254</b>
	194L, 194E / L 2	194L-A4-000 194L-I4-000 194L-A6-000 194L-I6-000	LL 2-A-4-000❶ LL 2-I-4-000❷ LL 2-A-6-000❶ LL 2-I-6-000❷	<b>1255</b> <b>1256</b> <b>1257</b> <b>1258</b>					
	194E	194L-A8-000 194L-I8-000		<b>1259</b> <b>1260</b>					
<b>30°</b>									
	194C / L 1	194C-C3-900	LL 1-C-3-900	<b>1261</b>		194C / L 1	194C-C3-901	LL 1-C-3-901	<b>1262</b>
	194L / L 2	194L-A4-900 194L-A6-900	LL 2-A-4-900 LL 2-A-6-900	<b>1263</b> <b>1264</b>		194L	194L-A4-901 194L-A6-901	LL 2-A-4-901 LL 2-A-6-901	<b>1265</b> <b>1266</b>
	194C / L 1	194C-C3-902	LL 1-C-3-902	<b>1267</b>		194C / L 1	194C-C3-300	LL 1-C-3-300	<b>1268</b>
	194L / L 2	194L-A4-902 194L-A6-902	LL 2-A-4-902 LL 2-A-6-902	<b>1269</b> <b>1270</b>		194L / L 2	194L-A4-300 194L-A6-300	LL 2-A-4-300 LL 2-A-6-300	<b>1271</b> <b>1272</b>
	194C / L 1	194C-C3-500	LL 1-C-3-500	<b>1273</b>		194C / L 1	194C-C3-501	LL 1-C-3-501	<b>1274</b>
	194L / L 2	194L-A4-500 194L-A6-500	LL 2-A-4-500 LL 2-A-6-500	<b>1275</b> <b>1276</b>		194L / L 2	194L-A4-501 194L-A6-501	LL 2-A-4-501 LL 2-A-6-501	<b>1277</b> <b>1278</b>
	194C / L 1	194C-C3-502	LL 1-C-3-502	<b>1279</b>					
	194L / L 2	194L-A4-502 194L-A6-502	LL 2-A-4-502 LL 2-A-6-502	<b>1280</b> <b>1281</b>					
<b>60°</b>									
	194C / L 1	194C-C3-150	LL 1-C-3-150	<b>1282</b>		194C / L 1	194C-C3-250	LL 1-C-3-250	<b>1283</b>
	194L / L 2	194L-A4-150 194L-A6-150	LL 2-A-4-150 LL 2-A-6-150	<b>1284</b> <b>1285</b>		194L / L 2	194L-A4-250 194L-A6-250	LL 2-A-4-250 LL 2-A-6-250	<b>1286</b> <b>1287</b>
	194C / L 1	194C-C3-350	LL 1-C-3-350	<b>1288</b>		194C / L 1	194C-C3-450	LL 1-C-3-450	<b>1289</b>
	194L / L 2	194L-A4-350 194L-A6-350	LL 2-A-4-350 LL 2-A-6-350	<b>1290</b> <b>1291</b>		194L / L 2	194L-A4-450 194L-A6-450	LL 2-A-4-450 LL 2-A-6-450	<b>1292</b> <b>1293</b>

❶ Legend Plate in grey  
❷ Legend Plate in yellow

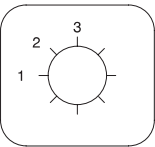
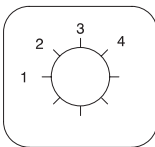
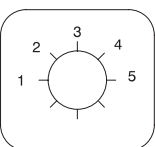
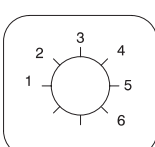
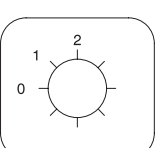
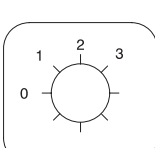
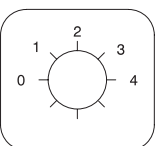
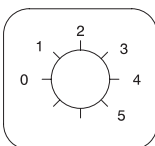
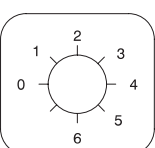
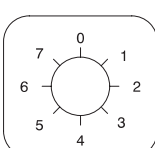
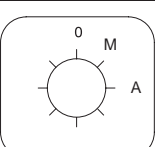
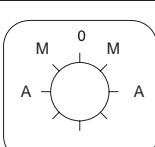
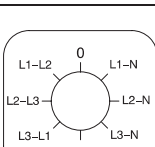
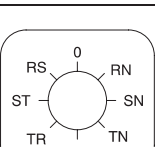
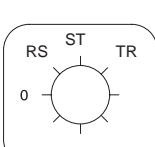
# Control and Load Switches

## Accessories

### Legend Plate for Actuator Type A, C, E, I, L, P, S

Legend Plate	For type	Allen Bradley Cat. No.	Sprecher+Schuh Type Ref.	Index	Legend Plate	For type	Allen Bradley Cat. No.	Sprecher+Schuh Type Ref.	Index
<b>60°</b>									
	194C / L 1	194C-C3-451	LL 1-C-3-451	<b>1294</b>		194C / L 1	194C-C3-452	LL 1-C-3-452	<b>1295</b>
	194L / L 2	194L-A4-451 194L-A6-451	LL 2-A-4-451 LL 2-A-6-451	<b>1296</b> <b>1297</b>		194L / L 2	194L-A4-452 194L-A6-452	LL 2-A-4-452 LL 2-A-6-452	<b>1298</b> <b>1299</b>
	194C / L 1	194C-C3-453	LL 1-C-3-453	<b>1300</b>		194L / L 2	194L-A4-752 194L-A6-752	LL 2-A-4-752 LL 2-A-6-752	<b>1301</b> <b>1302</b>
	194L / L 2	194L-A4-453 194L-A6-453	LL 2-A-4-453 LL 2-A-6-453	<b>1303</b> <b>1304</b>					
	194C / L 1	194C-C3-550	LL 1-C-3-550	<b>1305</b>		194L / L 2	194L-A4-551 194L-A6-551	LL 2-A-4-551 LL 2-A-6-551	<b>1306</b> <b>1307</b>
	194L / L 2	194L-A4-550 194L-A6-550	LL 2-A-4-550 LL 2-A-6-550	<b>1308</b> <b>1309</b>					
	194L / L 2	194L-A4-552 194L-A6-552	LL 2-A-4-552 LL 2-A-6-552	<b>1310</b> <b>1311</b>		194L / L 2	194L-A4-553 194L-A6-553	LL 2-A-4-553 LL 2-A-6-553	<b>1312</b> <b>1313</b>
	194L / L 2	194L-A4-750 194L-A6-750	LL 2-A-4-750 LL 2-A-6-750	<b>1314</b> <b>1315</b>		194L / L 2	194L-A4-755 194L-A6-755	LL 2-A-4-755 LL 2-A-6-755	<b>1316</b> <b>1317</b>
	194L / L 2	194L-A4-751 194L-A6-751	LL 2-A-4-751 LL 2-A-6-751	<b>1318</b> <b>1319</b>		194C / L 1	194C-C3-350A	LL 1-C-3-350A	<b>1320</b>
						149C / L 2	194L-A4-350A 194L-A6-350A	LL 2-A-4-350A LL 2-A-6-350A	<b>1321</b> <b>1322</b>
	194L / L 2	194L-A4-350R 194L-A6-350R	LL 2-A-4-350R LL 2-A-6-350R	<b>1323</b> <b>1324</b>					
<b>45°</b>									
	194L / L 2	194L-A4-925 194L-A6-925	LL 2-A-4-925 LL 2-A-6-925	<b>1325</b> <b>1326</b>		194L / L 2	194L-A4-225 194L-A6-225 194L-P4-225	LL 2-A-4-225 LL 2-A-6-225 LL 2-P-4-225	<b>1327</b> <b>1328</b> <b>1329</b>
	194L / L 2	194L-A4-325 194L-A6-325 194L-P4-325	LL 2-A-4-325 LL 2-A-6-325 LL 2-P-4-325	<b>1330</b> <b>1331</b> <b>1332</b>		194L / L 2	194L-A4-325R 194L-A6-325R 194L-P4-325R	LL 2-A-4-325R LL 2-A-6-325R LL 2-P-4-325R	<b>1333</b> <b>1334</b> <b>1335</b>

**Legend Plate for Actuators Type A, C, E, I, L, P, S**

Legend Plate	For type	Allen Bradley Cat. No.	Sprecher+Schuh Type Ref.	Index	Legend Plate	For type	Allen Bradley Cat. No.	Sprecher+Schuh Type Ref.	Index
<b>45°</b>									
	194L / L 2	194L-A4-425 194L-A6-425	LL 2-A-4-425 LL 2-A-6-425	<b>1336</b> <b>1337</b>		194L / L 2	194L-A4-426 194L-A6-426	LL 2-A-4-426 LL 2-A-6-426	<b>1338</b> <b>1339</b>
	194L / L 2	194L-A4-427 194L-A6-427	LL 2-A-4-427 LL 2-A-6-427	<b>1340</b> <b>1341</b>		194L / L 2	194L-A4-428 194L-A6-428	LL 2-A-4-428 LL 2-A-6-428	<b>1342</b> <b>1343</b>
	194L / L 2	194L-A4-525 194L-A6-525	LL 2-A-4-525 LL 2-A-6-525	<b>1344</b> <b>1345</b>		194C / L 1	194C-C3-526	LL 1-C-3-526	<b>1346</b>
	194L / L 2	194L-A4-526 194L-A6-526	LL 2-A-4-526 LL 2-A-6-526	<b>1347</b> <b>1348</b>		194L / L 2	194L-A4-526 194L-A6-526	LL 2-A-4-526 LL 2-A-6-526	<b>1347</b> <b>1348</b>
	194L / L 2	194L-A4-527 194L-A6-527	LL 2-A-4-527 LL 2-A-6-527	<b>1349</b> <b>1350</b>		194L / L 2	194L-A4-528 194L-A6-528	LL 2-A-4-528 LL 2-A-6-528	<b>1351</b> <b>1352</b>
	194L / L 2	194L-A4-529 194L-A6-529	LL 2-A-4-529 LL 2-A-6-529	<b>1353</b> <b>1354</b>		194L / L 2	194L-A4-534 194L-A6-534	LL 2-A-4-534 LL 2-A-6-534	<b>1355</b> <b>1356</b>
	194L / L 2	194L-A4-733 194L-A6-733	LL 2-A-4-733 LL 2-A-6-733	<b>1357</b> <b>1358</b>		194L / L 2	194L-A4-734 194L-A6-734	LL 2-A-4-734 LL 2-A-6-734	<b>1359</b> <b>1360</b>
	194C / L 1	194C-C3-825	LL 1-C-3-825	<b>1361</b>		194C / L 1	194C-C3-825A	LL 1-C-3-825A	<b>1362</b>
	194L / L 2	194L-A4-825 194L-A6-825 194L-P4-825	LL 2-A-4-825 LL 2-A-6-825 LL 2-P-4-825	<b>1363</b> <b>1364</b> <b>1365</b>		194L / L 2	194L-A4-825A 194L-A6-825A 194L-P4-825A	LL 2-A-4-825A LL 2-A-6-825A LL 2-P-4-825A	<b>1366</b> <b>1367</b> <b>1368</b>
	194L / L 2	194L-A4-826 194L-A6-826 194L-P4-826	LL 2-A-4-826 LL 2-A-6-826 LL 2-P-4-826	<b>1369</b> <b>1370</b> <b>1371</b>		194C / L 1	194C-C3-827	LL 1-C-3-827	<b>1372</b>
					194L / L 2	194L-A4-827 194L-A6-827	LL 2-A-4-827 LL 2-A-6-827	<b>1373</b> <b>1374</b>	

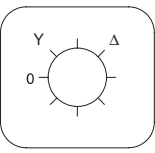
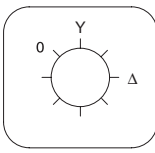
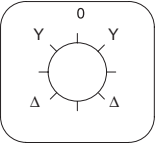
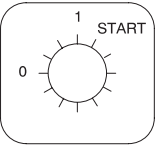
# Control and Load Switches

## Accessories

### Legend Plate for Actuators Type A, C, E, I, L, P, S












Legend Plate	For type	Allen Bradley Cat. No.	Sprecher+Schuh Type Ref.	Index	Legend Plate	For type	Allen Bradley Cat. No.	Sprecher+Schuh Type Ref.	Index
<b>45°</b>									
	194C / L 1	194C-C3-827A	LL 1-C-3-827A	<b>1375</b>		194L / L 2	194L-A4-828 194L-A6-828	LL 2-A-4-828 LL 2-A-6-828	<b>1376</b> <b>1377</b>
	194L / L 2	194L-A4-827A 194L-A6-827A 194L-P4-827A	LL 2-A-4-827A LL 2-A-6-827A LL 2-P-4-827A	<b>1378</b> <b>1379</b> <b>1380</b>					
	194C / L 1	194C-C3-829	LL 1-C-3-829	<b>1381</b>		194C / L 1	194C-C3-829A	LL 1-C-3-829A	<b>1382</b>
	194L / L 2	194L-A4-829 194L-A6-829	LL 2-A-4-829 LL 2-A-6-829	<b>1383</b> <b>1384</b>		194L / L 2	194L-A4-829A 194L-A6-829A 194L-P4-829A	LL 2-A-4-829A LL 2-A-6-829A LL 2-P-4-829A	<b>1385</b> <b>1386</b> <b>1387</b>
	194L / L 2	194L-A4-832 194L-A6-832	LL 2-A-4-832 LL 2-A-6-832	<b>1388</b> <b>1389</b>		194L / L 2	194L-A4-832A 194L-A6-832A 194L-P4-832A	LL 2-A-4-832A LL 2-A-6-832A LL 2-P-4-832A	<b>1390</b> <b>1391</b> <b>1392</b>
	194L / L 2	194L-A4-833 194L-A6-833	LL 2-A-4-833 LL 2-A-6-833	<b>1393</b> <b>1394</b>		194L / L 2	194L-A4-833A 194L-A6-833A 194L-P4-833A	LL 2-A-4-833A LL 2-A-6-833A LL 2-P-4-833A	<b>1395</b> <b>1396</b> <b>1397</b>
<b>90°</b>									
	194C / L 1	194C-C3-175	LL 1-C-3-175	<b>1398</b>		194C / L 1	194C-C3-175I	LL 1-C-3-175I	<b>1399</b>
	194L / L 2	194C-P4-175	LL 2-P-4-175	<b>1400</b>		194L / L 2	194C-P4-175I	LL 2-P-4-175I	<b>1401</b>
	194L, 194E / L 2	194L-A4-175 194L-A6-175 194L-I4-175 194L-I6-175	LL 2-A-4-175 LL 2-A-6-175 LL 2-I-4-175 LL 2-I-6-175	<b>1402</b> <b>1403</b> <b>1404</b> <b>1405</b>		194L, 194E / L 2	194L-A4-175I 194L-A6-175I 194L-I4-175I 194L-I6-175I	LL 2-A-4-175I LL 2-A-6-175I LL 2-I-4-175I LL 2-I-6-175I	<b>1406</b> <b>1407</b> <b>1408</b> <b>1409</b>
	194E	194L-A8-175 194L-I8-175		<b>1410</b> <b>1411</b>		194E	194L-A8-175I 194L-I8-175I		<b>1412</b> <b>1413</b>
	194C / L 1	194C-C3-178	LL 1-C-3-178	<b>1414</b>		194L / L 2	194L-A4-178I 194L-A6-178I 194L-I4-178I 194L-I6-178I 194L-P4-178I	LL 2-A-4-178I LL 2-A-6-178I LL 2-I-4-178I LL 2-I-6-178I LL 2-P-4-178I	<b>1415</b> <b>1416</b> <b>1417</b> <b>1418</b> <b>1419</b>
	194L / L 2	194L-A4-178 194L-A6-178 194L-I4-178 194L-I6-178 194L-P4-178	LL 2-A-4-178 LL 2-A-6-178 LL 2-I-4-178 LL 2-I-6-178 LL 2-P-4-178	<b>1420</b> <b>1421</b> <b>1422</b> <b>1423</b> <b>1424</b>					
	194L / L 2	194L-A4-375 194L-A6-375	LL 2-A-4-375 LL 2-A-6-375	<b>1425</b> <b>1426</b>		194C / L 1	194C-C3-875	LL 1-C-3-875	<b>1427</b>
						194L / L 2	194L-A4-875 194L-A6-875 194L-P4-875	LL 2-A-4-875 LL 2-A-6-875 LL 2-P-4-875	<b>1428</b> <b>1429</b> <b>1430</b>
	194C / L 1	194C-C3-876	LL 1-C-3-876	<b>1431</b>					
	194L / L 2	194L-A4-876 194L-A6-876	LL 2-A-4-876 LL 2-A-6-876	<b>1432</b> <b>1433</b>					

**Legend Plate for Actuators Type A, C, E, I, L, P, S**



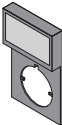
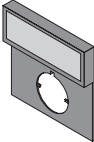





Legend Plate	For type	Allen Bradley Cat. No.	Sprecher+Schuh Type Ref.	Index	Legend Plate	For type	Allen Bradley Cat. No.	Sprecher+Schuh Type Ref.	Index
<b>90°/45°</b>									
	194L / L 2	194L-A4-725 194L-A6-725	LL 2-A-4-725 LL 2-A-6-725	<b>1434</b> <b>1435</b>		194L / L 2	194L-A4-732 194L-A6-732	LL 2-A-4-732 LL 2-A-6-732	<b>1436</b> <b>1437</b>
	194L / L 2	194L-A4-728 194L-A6-728	LL 2-A-4-728 LL 2-A-6-728	<b>1438</b> <b>1439</b>					
<b>90°/30°</b>									
	194C / L 1	194C-C3-975	LL 1-C-3-975	<b>1440</b>					
	194L / L 2	194L-A4-975 194L-A6-975	LL 2-A-4-975 LL 2-A-6-975	<b>1441</b> <b>1442</b>					

# Control and Load Switches

## Accessories

	Description		For type	Allen Bradley Cat. No.	Sprecher+Schuh Type Ref.	Index
	<b>Shaft</b>  Length 34 mm		194L / L 2, 194E-E	194L-G3380	L 2-G 3380	<b>1443</b>
	<b>Shafts</b>  Length 44 mm Length 52 mm Length 57 mm		194L-A / LA 2, 194E-A	194L-G2830 194L-G3194 194L-G3195	LA 2-G 2830 LA 2-G 3194 LA 2-G 3195	<b>1444</b> <b>1445</b> <b>1446</b>
	<b>Shaft extensions (and enclosure extensions)</b> (Max. 4 pieces)  2 pieces L = 24 mm		194L-A / LA 2, 194E-A	194L-G2853	LA 2-G 2853	<b>1447</b>
	<b>Metal shaft extensions</b> Provision for locking in position 0 by padlock  Length 110...235 mm Length 230...350 mm		194L-A / LA 2, 194E-A	194L-G3393 194L-G3394	LA 2-G 3393 LA 2-G 3394	<b>1448</b> <b>1449</b>
	<b>Inserts</b> For modifying metal shaft extensions LA 2-G 3393 / 194L-G3393 and LA 2-G 3394 / 194L-G3394 for switch position:  Provision for padlock in position 0		194L-A / LA 2	194L-G3398	LA 2-G 3398	<b>1450</b>
	<b>Inserts</b> For modifying metal shaft extensions LA 2-G 3393 / 194L-G3393 and LA 2-G 3394 / 194L-G3394 for all switch positions (360°)		194L-A / LA 2	194L-G3399	LA 2-G 3399	<b>1451</b>
	<b>Mechanical couplings for 6 Poles</b> for 194E-25/32 for 194E-40/63 for 194E-80/100		194E	194E-G3660 194E-G3661 194E-G3662	- - -	<b>1452</b> <b>1453</b> <b>1454</b>
	<b>Lever knob black</b>		194C / L 1	194C-G3381	L 1-G3381	<b>1455</b>
	<b>Lever knob</b>	Length: 37.5 mm      black red	194L / L2, 194E	194L-G3154N 194L-G3154R	L 2-G 3154N L 2-G 3154R	<b>1456</b> <b>1457</b>
		Length: 48 mm      black red	194L / L2, 194E	194L-G3155N 194L-G3155R	L 2-G 3155N L 2-G 3155R	<b>1458</b> <b>1459</b>
	<b>Lever knob with locking device</b>  black red		194L / L2, 194E	194L-G2864N 194L-G2864R	L 2-G 2864N L 2-G 2864R	<b>1460</b> <b>1461</b>
	<b>Handle knob and shaft for 194E-A</b>		194E-A	194R-HS4 194R-HS4E	- -	<b>1462</b> <b>1463</b>
	Handle knob with door interlock Protection Class IP66  black red / yellow					
	Metal shaft  Length 300 mm					







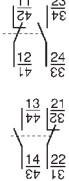

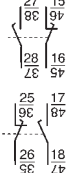

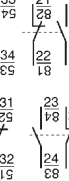





	Description		For type	Allen Bradley Cat. No.	Sprecher+Schuh Type Ref.	Index
	<b>Flat knob</b> ø 31 mm	black red	194L-A / LA 2 with actuator type P	194L-G2888N 194L-G2888R	L 2-G 2888N L 2-G 2888R	<b>1465</b> <b>1466</b>
	<b>Flat knob</b> ø 41 mm, black	Protection Class IP40	194L-E / LE 2	194L-G2851N	L 2-G 2851N	<b>1467</b>
		Protection Class IP65	194L-E / LE 2	194L-G2854N	L 2-G 2854N	<b>1468</b>
	<b>Label holders</b> black plastic, for labels, size 26 x 15 mm Secured by front element  Size 30 x 48 mm		for actuators 194L-HCB / LFC 2-B, 194L-HCD / LFC 2-D	–	18.104.424-51	<b>1469</b>
	<b>Label holders</b> black plastic, for labels, size 44 x 15 mm Secured by front element  Size 48 x 48 mm		194L / L 2	–	18.104.425-51	<b>1470</b>
	<b>Label holders</b> black plastic, for labels, size 44 x 15 mm Secured by double-sided adhesive tape or 2 screws  Size 48 x 18 mm		194L / L 2	–	18.104.432-51	<b>1471</b>
	<b>Label</b> aluminised plastic, for engraving by user for label holders 30 x 48 mm  Size 26 x 15 mm		194L / L 2	–	18.104.535-51	<b>1472</b>
	<b>Label</b> aluminised plastic, for engraving by user for label holders 48 x 48 mm and 48 x 18 mm  Size 44 x 15 mm		194L / L 2	–	18.104.535-52	<b>1473</b>
	<b>Additional name plates</b> For Actuators with sizes: 48 x 48 mm, 64 x 64 mm and 67 x 67 mm		194E-E, 194E-A	194L-G3667 ①	–	<b>1474</b>
	88 x 88 mm, 90 x 90 mm, 130 x 130 mm and 135 x 135 mm			194L-G3515	–	<b>1475</b>
	<b>Label holders</b> blank label for engraving by user  Printing area 27.5 x 7.5 mm 27.5 x 17.5 mm		194C / L 1	194C-G3382 194C-G3383	L 1-G 3382 L 1-G 3383	<b>1476</b>
	Size 30 x 39 mm 30 x 50 mm					<b>1477</b>
	<b>Rectangular front frames</b> with additional blank label, without knob and Legend Plate		194L / L 2, 194E	194L-G3196	L 2-G 3196	<b>1478</b>
	Size 48 x 62 mm					194L, 194E

① Available from January 1998

# Control and Load Switches

## Accessories

	Description	For type	Allen Bradley Cat. No.	Sprecher+Schuh Type Ref.	Index
	<b>3 and 4 pole terminal covers</b>	194L-E12/16/LE 2-12/16	194L-E12-C34	LE 2-12-C4	<b>1480</b>
		194L-E20/25/LE 2-20/25	194L-E20-C34	LE 2-20-C4	<b>1481</b>
		194L-A12/16/LA 2-12/16	194L-A12-C34	LA 2-12-C4	<b>1482</b>
		194L-A20/25/LA 2-20/25	194L-A20-C34	LA 2-20-C4	<b>1483</b>
	<b>Terminal cover</b> 3 pole	194E-25/32 194E-40/63 194E-80/100	194E-25-C3 194E-40-C3 194E-80-C3	- - -	<b>1484</b> <b>1485</b> <b>1486</b>
	<b>Terminal cover</b> 4 pole	194E-25/32 194E-40/63 194E-80/100	194E-25-C4 194E-40-C4 194E-80-C4	- - -	<b>1487</b> <b>1488</b> <b>1489</b>
	<b>Installation tool</b> for tightening the central fixture nut	194C // L 1, 194L / L 2	194L-N1	18.104.420-51	<b>1490</b>
	<b>Thermo-plastic enclosures</b> Dimensions 95 x 150 x 86 mm, Protection class IP65 for 194L-A / LA 212/16/20/25 with max. 2 switch banks for 194E-25/32 with max. 4 pole Enclosure with holes ABS Noryl	194L-A / LA 2, 194E	194L-G3572 194L-G3576	LA 2-G 3572 LA 2-G 3576	<b>1491</b> <b>1492</b>
	Enclosure without holes ABS Noryl	194L-A / LA 2	194L-G3574 194L-G3578	LA 2-G 3574 LA 2-G 3578	<b>1493</b> <b>1494</b>
	Dimensions 95 x 150 x 111 mm, Protection Class IP65 for 194L-A / LA 212/16 with max. 5 switch banks for 194L-A / LA 220/25 with max. 4 switch banks Enclosure with holes ABS Noryl	194L-A / LA 2	194L-G3573 194L-G3577 194L-G3575 194L-G3579	LA 2-G 3573 LA 2-G 3577 LA 2-G 3575 LA 2-G 3579	<b>1495</b> <b>1496</b> <b>1497</b> <b>1498</b>
	Enclosure without holes ABS Noryl				
	Dimensions 125 x 180 x 105 mm, Protection Class IP65 for 194E-40/63 with 3-4 pole and 194E-25/32 with 6 pole Enclosure ABS Noryl	194E-A	194E-G3663 194E-G3664	- -	<b>1499</b> <b>1500</b>
	Dimensions 175 x 230 x 120 mm, Protection Class IP65 for 194E-80/100 with 3-4 pole and 194E-40/63 with 6 pole Enclosure ABS Noryl	194E-A	194E-G3665 194E-G3666	- -	<b>1501</b> <b>1502</b>
	<b>Additional ground and neutral terminals for thermo-plastic enclosures</b> for Enclosure type 194L-G3572 and 194L-G3576 for Enclosure type 194E-G3663, 194E-G3664, 194E-G3665 and 194E-G3666	194E-A	194E-G3653 194E-G3673	- -	<b>1503</b> <b>1504</b>

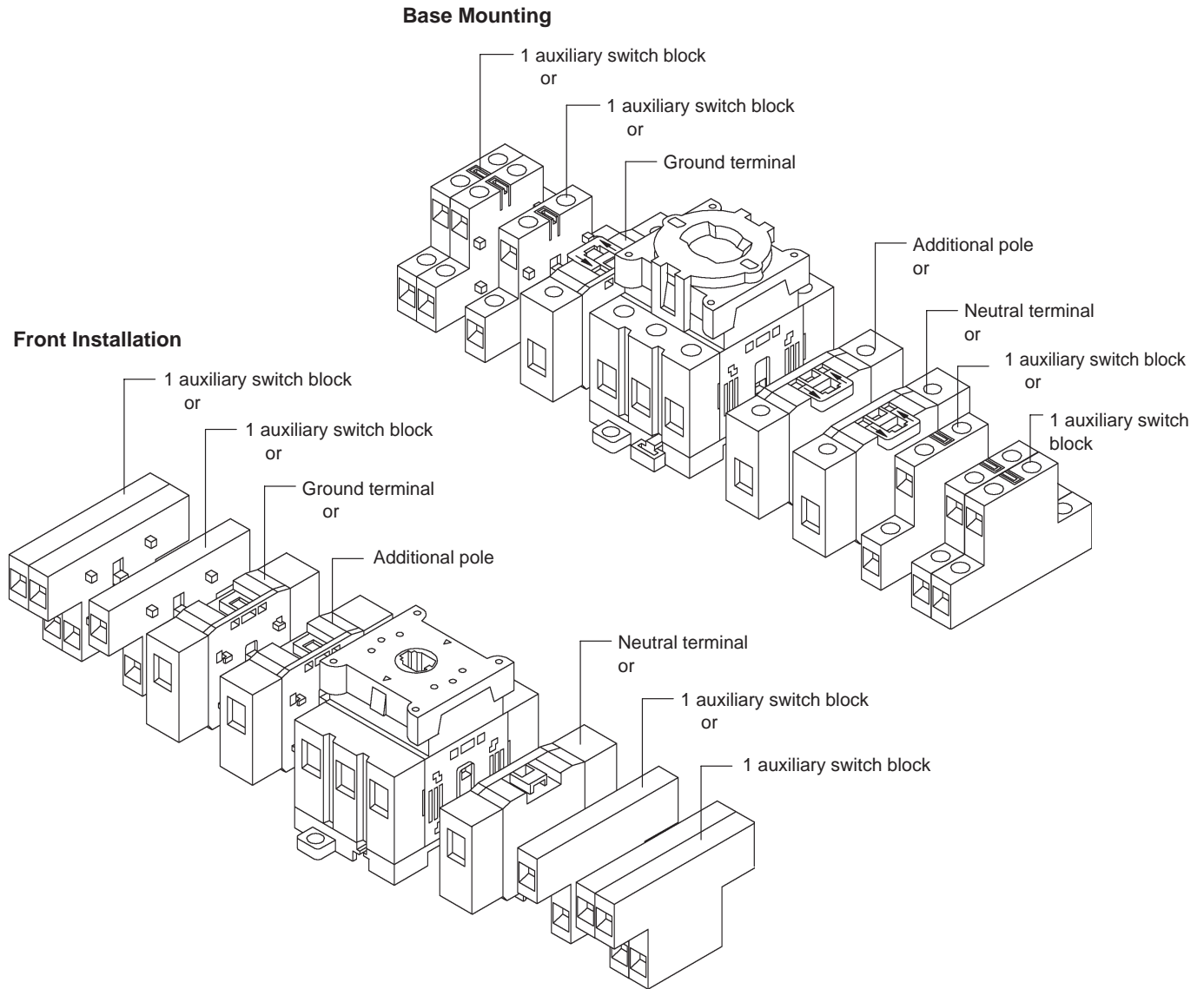
	Description	For type	Allen Bradley Cat. No.	Sprecher+Schuh Type Ref.	Index
 	<b>Auxiliary switch blocks</b> with 1 N/C and 1 N/O contact, for fitting to the left or right side	194E-E25...100	194E-E-P11	—	<b>1505</b>
		194E-A25...100	194E-A-P11	—	<b>1506</b>
 	<b>Auxiliary switch blocks</b> with 1 early closer and 1 N/O make-before-break for fitting to the left or right side	194E-E25...100	194E-E-PL11	—	<b>1507</b>
		194E-A25...100	194E-A-PL11	—	<b>1508</b>
 	<b>Auxiliary switch blocks</b> with 2 N/C and 2 N/O contacts, for fitting to the left or right side	194E-E25...100	194E-E-P22	—	<b>1509</b>
		194E-A25...100	194E-A-P22	—	<b>1510</b>
 N  N	<b>Neutral terminal</b>	194E-E25/32	194E-E32-TN	—	<b>1511</b>
		194E-E40/63	194E-E63-TN	—	<b>1512</b>
		194E-E80/100	194E-E100-TN	—	<b>1513</b>
		194E-A25/32	194E-A32-TN	—	<b>1514</b>
 PE  PE	<b>Ground terminal</b>	194E-E25/32	194E-E32-PE	—	<b>1517</b>
		194E-E40/63	194E-E63-PE	—	<b>1518</b>
		194E-E80/100	194E-E100-PE	—	<b>1519</b>
		194E-A25/32	194E-A32-PE	—	<b>1520</b>
 N  N	<b>Fourth pole</b> with 1 early closer	194E-E25	194E-E25-NP	—	<b>1523</b>
		194E-E32	194E-E32-NP	—	<b>1524</b>
		194E-E40	194E-E40-NP	—	<b>1525</b>
		194E-E63	194E-E63-NP	—	<b>1526</b>
 N  N	<b>Fourth pole</b> with 1 early closer	194E-E80	194E-E80-NP	—	<b>1527</b>
		194E-E100	194E-E100-NP	—	<b>1528</b>
		194E-A25	194E-A25-NP	—	<b>1529</b>
		194E-A32	194E-A32-NP	—	<b>1530</b>
 N  N	<b>Fourth pole</b> with 1 early closer	194E-A40	194E-A40-NP	—	<b>1531</b>
		194E-A63	194E-A63-NP	—	<b>1532</b>
		194E-A80	194E-A80-NP	—	<b>1533</b>
		194E-A100	194E-A100-NP	—	<b>1534</b>

# Control and Load Switches

## Accessories

The plug-on accessories can be fitted to the 194E without difficulty on site:

- Auxiliary switch blocks
- Neutral terminal
- Ground terminal
- Terminal cover



**IEC Performance Data for 194C / L 1, 194L / L 2**

		194C / L 1		194L / L 2				
				10 A	12 A	16 A	20 A	25 A
<b>Rated voltage <math>U_e</math></b>	IEC 947 [V]	440	690	690	690	690		
	SEV max. [V]	380	660	660	660	660		
	CEE 24/NEMKO [V]	380	500	500	500	500		
<b>Principal switching characteristics</b>								
Isolating conditions acc. to VDE fulfilled up to		[V]	250	690	690	690	690	
Rated-impulse voltage $U_{imp}$		[kV]	4	6	6	6	6	
<b>Thermal rated current <math>I_{th}</math></b>		IEC 947 [A]	10	16	20	25	30	
<b>Thermal rated current <math>I_{the}</math></b>		IEC 947 [A]	–	12	16	20	25	
<b>Rated current <math>I_e</math></b>								
<b>AC-1/ AC-21A</b> Non-inductive or slightly induct. loads Switching of resistive loads with slight overload	IEC 947 690 V [A]	10 <sup>①</sup>	12	16	20	25		
	AC-22A Switching of mixed resistive and inductive loads with slight overload	IEC 947 220...500 V [A]	–	12	16	20	25	
<b>AC-15</b> Switching of inductive drive, motors, valves and electromagnets	IEC 947 220...240 V [A]	2.5	5	6	7	8		
	380...440 V [A]	1.5	3	4	5	6		
	500 V [A]	–	2	2.5	3	4		
<b>DC switching capacity</b>		Contact in series: 1 2 3 4 5 6 8						
<b>Rated current <math>I_e</math></b>								
Rated voltage [V]		24 48 72 96 120 144 192 [A]	10	12	16	20	22	
<b>DC-21A</b>		48 96 144 192 240 288 384 [A]	6	10	12	16	18	
For resistive loads $T \leq 1$ ms		60 120 180 240 300 360 450 [A]	2.5	8	10	12	14	
$U_{e\ max} = 660$ V		110 220 330 440 550 660 – [A]	0.7	2	2.5	4	5	
		220 440 660 – – – – [A]	0.3	0.5	0.6	0.7	0.8	
		440 – – – – – [A]	0.2	0.35	0.4	0.45	0.5	
<b>Rated making/breaking capacity</b> ( $=1.5 \times I_e$ )								
1.05 x Rated voltage [V]		25.2 50.4 75.6 100.8 126 151.2 201.6 [A]	–	18	24	30	33	
		50.4 100.8 151.2 201.6 252 302.4 403.2 [A]	–	15	21	24	27	
For resistive loads $T \leq 1$ ms		63 126 189 252 315 378 504 [A]	–	12	18	18	21	
$U_{e\ max} = 660$ V		115.5 231 346.5 462 577.5 – – [A]	–	3	4.5	6	7.5	
		231 462 – – – – – [A]	–	0.75	1.12	1.05	1.2	
		462 – – – – – [A]	–	0.52	0.78	0.47	0.75	
<b>Rated current <math>I_e</math></b>								
Rated voltage [V]		24 48 72 96 120 144 192 [A]	6	8	10	12	14	
		30 60 90 120 150 180 240 [A]	3	4.5	5.5	7	8	
For inductive loads $T = 50$ ms		48 96 144 192 240 288 384 [A]	1	1.5	2	2.5	3	
$U_{e\ max} = 660$ V		60 120 180 240 300 360 450 [A]	0.7	1	1.2	1.5	1.8	
		110 220 330 440 550 660 – [A]	0.3	0.4	0.5	0.6	0.7	
<b>Rated making/breaking capacity</b> ( $=1.1 \times I_e$ )								
1.1 x Rated voltage [V]		26.4 52.8 79.2 105.6 132 158.4 184.8 [A]	–	8.8	11	13.2	15.4	
		33 66 99 132 165 198 231 [A]	–	4.95	6.05	7.7	8.8	
For inductive loads $T = 50$ ms		52.8 105.6 158.4 211.2 264 316.8 369.6 [A]	–	1.65	2.2	2.75	3.3	
$U_{e\ max} = 660$ V		66 132 198 264 330 396 462 [A]	–	1.1	1.32	1.65	1.98	
		121 242 363 484 605 – – [A]	–	0.44	0.55	0.66	0.77	

① only at 380 V

**IEC Performance Data for 194C / L 1, 194L / L 2**

				194C / L 1	194L / L 2				
				10 A	12 A	16 A	20 A	25 A	
<b>Rated power <math>P_e</math></b>									
	Rated voltage [V]	Contacts in Series							
	24	1	[kW]	–	0.12	0.15	0.20	0.25	
DC-23A, DC-3, DC-5	24	2	[kW]	–	0.20	0.25	0.30	0.37	
For inductive loads $T \leq 7.5$ ms	48	2	[kW]	–	0.25	0.30	0.37	0.50	
	48	3	[kW]	–	0.30	0.37	0.50	0.75	
	60	2	[kW]	–	0.25	0.30	0.37	0.50	
	60	4	[kW]	–	0.37	0.50	0.75	1.00	
	110	4	[kW]	–	0.50	0.75	1.00	1.20	
	110	6	[kW]	–	1.00	1.20	1.40	1.60	
	220	4	[kW]	–	0.37	0.50	0.75	1.00	
	220	6	[kW]	–	1.00	1.20	1.40	1.50	
<b>Rated making/breaking capacity (=4 x <math>I_e</math>)</b>									
	1.05 x Rated voltage [V]	Contacts in Series							
	25.2	1	[A]	–	20.0	25.0	33.3	41.6	
DC-23A, DC-3, DC-5	25.2	2	[A]	–	33.3	41.6	50.0	61.6	
For inductive loads $T \leq 15$ ms	50.4	2	[A]	–	21.0	25.0	30.8	41.6	
	50.4	3	[A]	–	25.0	30.8	42.0	62.4	
	63	2	[A]	–	16.6	20.0	24.6	33.2	
	63	4	[A]	–	24.6	33.3	50.0	66.4	
	115.5	4	[A]	–	18.1	27.2	36.4	44.0	
	115.5	6	[A]	–	36.4	43.6	51.0	58.2	
	231	4	[A]	–	6.7	9.1	13.6	18.2	
	231	6	[A]	–	18.1	21.8	25.2	27.2	
<b>Rated breaking capacity</b>									
	at 220 V		[A]	60	72	96	128	176	
			[cos $\phi$ ]	0.65	0.65	0.65	0.65	0.35	
	at 400 V		[A]	55	72	96	128	176	
			[cos $\phi$ ]	0.65	0.65	0.65	0.65	0.35	
	at 690 V		[A]	–	53	72	86	112	
			[cos $\phi$ ]	–	0.65	0.65	0.65	0.35	
<b>Rated Power <math>P_e</math></b>									
	IEC 947	240 V	[kW]	2.5	3	4	5.5	5.5	
<b>AC-2</b> Slip-ring motors: starting, reversing and electric braking; star/delta starting	3-phase/	380 V	[kW]	4.5	5.5	7.5	9	13	
	3-pole	415 V	[kW]	4.5	5.5	7.5	9	13	
		440 V	[kW]	4.5	5.5	7.5	9	13	
		500 V	[kW]	5.5	7.5	10	11	15	
		690 V	[kW]	–	7.5	10	11	15	
<b>AC-3</b> Squirrel-cage motors: starting and stopping of running motors	IEC 947	220...240 V	[kW]	1.5	2.2	3	4.5	5.5	
	3-phase/	380...440 V	[kW]	2.2	4	5.5	7.5	11	
	3-pole	500 V	[kW]	–	5.5	7.5	10	13	
		690 V	[kW]	–	5.5	7.5	8	11	
		1-phase/	110 V	[kW]	0.3	0.75	1.1	1.2	1.6
	2-pole	220...240 V	[kW]	0.55	1.3	2.2	2.5	3.2	
		380...440 V	[kW]	0.75	2.2	3.7	4.5	5.5	

**IEC Performance Data for 194C / L 1, 194L / L 2**

				194C / L 1	194L / L 2				
				10 A	12 A	16 A	20 A	25 A	
<b>Rated Power <math>P_e</math></b>	IEC 947	220...240 V	[kW]	0.37	0.75	1.5	3	4	
<b>AC-4</b> Squirrel-cage motors: starting, reversing, electric breaking, inching	3-phase/	380...415 V	[kW]	0.55	1.5	2.2	3.7	5.5	
	3-pole	440...500 V	[kW]	0.55	1.5	2.2	3.7	5.5	
	1-phase/	110 V	[kW]	0.15	0.18	0.37	0.55	0.75	
	2-pole	240 V	[kW]	0.25	0.37	0.75	1.5	2.2	
		380 V	[kW]	0.5	0.75	1.1	1.8	3	
		440 V	[kW]	0.5	0.75	1.1	1.8	3	
<b>AC-23A</b> Occasional switching of motors and other highly inductive loads (criterion for selecting main switches)	IEC 947	220...240 V	[kW]	1.8	2.2	3	4.5	5.5	
	3-phase/	380...440 V	[kW]	3	4	5.5	7.5	11	
	3-pole	500 V	[kW]	–	5.5	7.5	10	13	
		690 V	[kW]	–	5.5	7.5	8	11	
	1-phase/	110 V	[kW]	0.37	0.75	1.1	1.2	1.6	
	2-pole	220...240 V	[kW]	0.75	1.3	2.2	2.5	3.2	
		380...440 V	[kW]	1.1	2.2	3.7	4.5	5.5	
<b>Short-circuit withstand</b>									
Rated-short-time current (1 s)			[kA <sub>rms</sub> ]	0.3	0.48	0.48	0.6	0.75	
Strongest series fuse, not enclosure	(gL Characteristic)		[A]	10	20	20	20	25	
Conditional rated short-circuit			[kA]	–	6	6	5	5	
<b>Switching rate</b>	electrical		[operations/h]	150	120	120	120	120	

**UL/CSA Performance Data for 194C / L 1, 194L / L 2**

				194C / L 1	194L / L 2				
				10 A	12 A	16 A	20 A	25 A	
<b>Rated voltage <math>U_e</math></b>			[VAC]	300	600	600	600	600	
<b>Heavy Pilot Duty Ampere Rating</b>	Contact class			A300	A600	A600	–	–	
	Non-inductive or slightly ind. load ❶ [A]			10	12	16	20	25	
<b>DC switching capacity <math>P_e</math></b>	UL/CSA						(FLA)	(FLA)	
Standard motor DOL rating (similar to AC-3)	3-phase/	120 V	[HP]	1	1	1.5	2 (13.6)	3 (19.2)	
	3-pole	240 V	[HP]	1	2	3	4 (12.4)	6 (18)	
		480 V	[HP]	–	5	7.5	8 (11.6)	12 (17)	
		600 V	[HP]	–	5	7.5	10 (11)	15 (17)	
	1-phase/	120 V	[HP]	0.33	0.5	0.75	1 (16)	1.5 (20)	
	2-pole	240 V	[HP]	0.75	1	1.5	2 (12)	3 (17)	
		277 V	[HP]	0.75	–	–	–	–	
		480 V	[HP]	–	2	3	4 (11.2)	6 (17)	
		600 V	[HP]	–	3	3	5 (11.2)	7.5 (16)	
	Heavy motor, reversing rating (similar to AC-4)	3-phase/	120 V	[HP]	0.33	–	–	–	–
	3-pole	240 V	[HP]	0.76	–	–	–	–	
Max. back-up fuse	(gG Characteristic)		[A]	25	35	55	60	80	
<b>Switching rate</b>	electrical		[operations/h]	150	120	120	120	120	
<b>Max. wire gauges</b>	single wire or stranded		[mm <sup>2</sup> ]	2 x 1.5	2 x 2.5	2 x 2.5	6	6	
			[AWG]	14	12	12	10	10	
	fine strands (with sleeve)		[mm <sup>2</sup> ]	1.5 ❷	2 x 2.5	2 x 2.5	2 x 4	2 x 4	
			[AWG]	16	14	14	12	12	

❶ Suitable for off-load switching (AC-20) above 660 V. (max. 660 V with fixing screws at the rear).

❷ Without sleeve.

# Control and Load Switches

## Technical Information

### Mechanical Data

		194C / L 1	194L / L 2				
		10 A	12 A	16 A	20 A	25 A	
<b>Protection class acc. to IEC 529</b>	Actuators	IP65					
	Switch Bodies	IP20					
<b>Mechanical Life</b>	[million operations]	1	1	1	1	1	
<b>Switching rate</b>	Mechanical [operations/h]	2000	1200				
<b>Max. wire gauges</b>	Single wire or stranded	min. [mm <sup>2</sup> /AWG] max.[mm <sup>2</sup> /AWG]	– 2 x 1.5/14	2 x 1/18 2 x 2.5/12	2 x 1/18 2 x 2.5/12	2 x 1.5/16 6/10	2 x 1.5/16 6/10
	fine strands	min. [mm <sup>2</sup> /AWG]	–	2 x 0.75/20	2 x 0.75/20	2 x 1.5/16	2 x 1.5/16
	(with sleeve)	max.[mm <sup>2</sup> /AWG]	1.5 ① /16	2 x 2.5/14	2 x 2.5/14	2 x 4/12	2 x 4/12

① Without sleeve

### Environmental Data

		194C / L 1	194L / L 2				
		10 A	12 A	16 A	20 A	25 A	
<b>Ambient temperature</b>	operation	[°C]	–20 ... +55	–20 ... +60			
		[°F]	–4 ... +131	–4 ... +140			
	storage	[°C]	–30...+100	–30 ... +70			
		[°F]	–22...+212	–22 ... +158			

### Approvals

		194C / L 1	194L / L 2			
		10 A	12 A	16 A	20 A	25 A
<b>Testing institutions</b>	CE-Confimal	K	K			
	UL-listed	–	A			
	UL-recognized	A	–			
	CSA	A	A			
	Germanisch Lloyd	–	A			
	Lloyds Register of Shipping	–	A			
	RINA	–	A			

A = Approved or test passed

K= CE Confimal



**IEC Performance Data for 194E**

	194E-25	194E-32	194E-40	194E-63	194E-80	194E-100	Aux. Switches
<b>Rated voltage <math>U_e</math>: IEC</b> [V]	690	690	690	690	690	690	690
<b>Rated voltage <math>U_i</math>: UL, CSA</b> [V]	600	600	600	600	600	600	600
<b>Rated isolation voltage <math>U_e</math>: UL, CSA</b> [V]	690/600	690/600	690/600	690/600	690/600	690/600	690/600
<b>Rated impulse voltage <math>U_{imp}</math>: UL, CSA</b> [kV]	8	8	8	8	8	8	6
<b>Test voltage <math>U_i</math>, 1 min</b> [kV]	2.5	2.5	2.5	2.5	2.5	2.5	2.5
<b>Rated frequency</b> [Hz]	50/60	50/60	50/60	50/60	50/60	50/60	50/60
Thermal rated voltage $I_{th}$ , open [A]	40	50	63	75	100	120	12
Thermal rated voltage $I_{th}$ , enclosed [A]	32	40	50	63	80	100	10
<b>Rated current <math>I_e</math></b>							
<b>AC-1 /</b> Non-inductive or slightly induct. loads [A]	25	32	40	63	80	100	10
<b>AC-21A</b> Switching of resistive loads with slight overload							
<b>Rated power <math>P_e</math></b>							
<b>AC-23A</b> Occasional switching of motors and other highly inductive loads	230 V [kW] 7.5 400 V [kW] 11 690 V [kW] 11	11 15 15	15 18.5 18.5	18.5 22 22	22 37 37	30 45 45	– – –
<b>AC-3</b> Squirrel-cage motors: starting and stopping of running motors	230 V [kW] 5.5 400 V [kW] 7.5 690 V [kW] 7.5	7.5 11 11	11 15 15	15 18.5 18.5	18.5 30 30	22 37 37	– – –
<b>Short-circuit current</b> (Coordination type "2")							
Conditional rated short-circuit current 400/415 V [kA]	15	15	20	15	–	–	
Max. fuse rating of circuit (type gG) [A]	25	25	50	63	80	100	
Rated short-time current $I_{cw}$ , 1s [A]	430	500	600	1300	1850	2500	
<b>Rated breaking capacity</b>							
<b>AC-23A (cos <math>\phi</math> 0.45)</b>							
230 V [A]	204	296	400	484	580	780	
400 V [A]	172	232	280	336	544	680	
690 V [A]	100	136	164	196	316	376	
<b>AC-15</b> Control of AC electromagnetical loads (code designation)	–	–	–	–	–	–	A600
<b>DC-13</b> Control of DC electromagnetical loads (code designation)	–	–	–	–	–	–	Q600

Bulletin 194E Series B  
**Control and Load Switches**  
 Technical Information

**IEC Performance Data for 194E**

			194E-25	194E-32	194E-40	194E-63	194E-80	194E-100	Aux. Switches	
<b>DC switching capacity</b>										
<b>Rated current <math>I_e</math></b> Rated voltage [V]	Pole									
		<b>DC-21 A</b>	24	1	[A]	-	-	-	-	-
		For resistive loads $T \leq 1$ ms	48	1	[A]	-	-	-	-	-
		$U_{e\ max} = 600V$	110	1	[A]	-	-	-	-	-
			220	1	[A]	-	-	-	-	-
			440	1	[A]	-	-	-	-	-
			600	1	[A]	-	-	-	-	-
Rated voltage [V]	Poles in Series									
		24	2	[A]	-	-	-	-	-	
		48	2	[A]	-	-	-	-	-	
		110	2	[A]	-	-	-	-	-	
		220	2	[A]	-	-	-	-	-	
		440	2	[A]	-	-	-	-	-	
		600	2	[A]	-	-	-	-	-	
Rated voltage [V]	Poles in Series									
		24	3	[A]	-	-	-	-	-	
		48	3	[A]	-	-	-	-	-	
		110	3	[A]	-	-	-	-	-	
		220	3	[A]	-	-	-	-	-	
		440	3	[A]	-	-	-	-	-	
		600	3	[A]	-	-	-	-	-	
<b>Rated power <math>P_e</math></b> Rated voltage [V]	Poles in Series									
		<b>DC-23 A, DC-3, DC-5</b>	24	3	[kW]	-	-	-	-	-
		For inductive loads $T \leq 7.5$ ms	48	3	[kW]	-	-	-	-	-
		$U_e\ max = 600V$	110	3	[kW]	-	-	-	-	-
			220	3	[kW]	-	-	-	-	-
			440	3	[kW]	-	-	-	-	-
			600	3	[kW]	-	-	-	-	-

- Technical Information for DC Actuator in preparation

**UL/CSA Performance Data for 194E**

		194E-25	194E-32	194E-40	194E-63	194E-80	194E-100	Auxiliary switches		
<b>Continuous current</b>	[A]	25	32	40	63	80	100	A600 Q600		
	Heavy Pilot Duty [AC]	A600	A600							
	Standard Duty [DC]									
<b>Motor rating 60 Hz</b> 1-phase (2 poles)	120 V, 1 P [FLA]	9.8	16	24	34	56	80			
	[HP]	0.5	1	2	3	5	7.5			
	240 V, 1 P [FLA]	10	12	17	28	50	68			
	[HP]	1.5	2	3	5	10	15			
	480 V, 1 P [FLA]	8.5	14	21	26	34	55			
	[HP]	3	5	7.5	10	15	25			
	600 V, 1 P [FLA]	6.8	11.2	16	20	27	44			
	[HP]	3	5	7.5	10	15	25			
	3-phase	120 V, 3 P [FLA]	13.6	19.2	28	44	56		84	
		[HP]	2	3	5	7.5	10		15	
		240 V, 3 P [FLA]	15.2	22	28	42	68		80	
		[HP]	5	7.5	10	15	25		30	
480 V, 3 P [FLA]		14	21	27	34	52	65			
[HP]		10	15	20	25	40	50			
600 V, 3 P [FLA]		11	17	22	27	52	52			
[HP]		10	15	20	25	50	50			

**Mechanical Data**

<b>Protection class according to IEC 529</b>									
<b>Motor rating 60 Hz</b>									
Actuators		IP65	IP65	IP65	IP65	IP65	IP65	IP65	
Switch bodies		IP20	IP20	IP20	IP20	IP20	IP20	IP20	
<b>Mechanical life</b>	[Million operations]	0.2	0.2	0.2	0.2	0.2	0.2	0.2	
<b>Max. wire gauges</b>									
<b>Terminal sizes according to IEC 947-1</b>		A5	A5	A7	A7	A9	A9	2 x A2	
Fine strands	1 conductors	mm <sup>2</sup>	1-10	1-10	2.5-16	2.5-16	4-35	4-35	0.5...2.5
Rigid wire	1 conductors	mm <sup>2</sup>	1.5-16	1.5-16	2.5-25	2.5-25	4-50	4-50	0.75...2.5
<b>Wire gauges according to UL / CSA</b>		[AWG]	14/8	14/8	12/4	12/4	10/1	10/1	18/14

**Approvals**

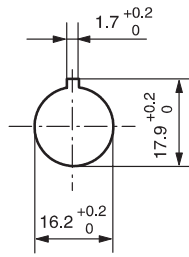
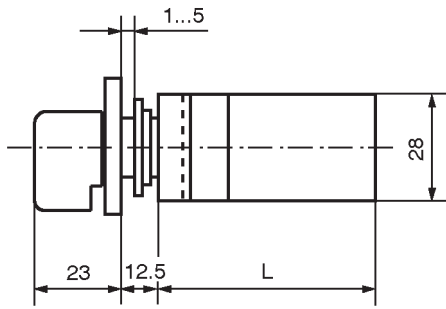
	UL-listed	CSA	CE		
194E-E25	A	A	K		
194E-E32	A	A	K		
194E-E40	A	A	K		
194E-E63	A	A	K		
194E-E80	A	A	K		
194E-E100	A	A	K		
194E-A25	A	A	K		
194E-A32	A	A	K		
194E-A40	A	A	K		
194E-A63	A	A	K		
194E-A80	A	A	K		
194E-A100	A	A	K		
Auxiliary switch block	A	A	K		
Fourth Pole	A	A	K		

- A = Approved or test passed
- Z = Accessories are covered by the approval for the switch
- X = Pending
- K = CE Confirmed

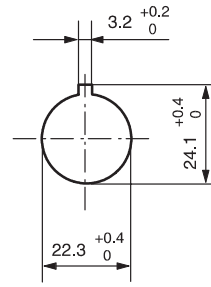
**Bulletin 194C/ L 1**  
**Control and Load Switches**  
**Dimensions**

**194C-C10 / LC 1-10 with Central Fixture**

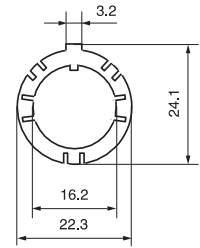
Dimensions [mm]



Punching plan  
 ø 16 mm

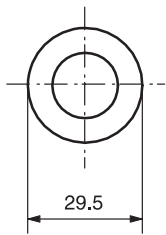


Punching plan  
 ø 22 mm

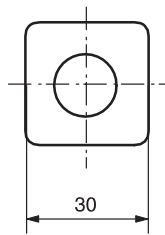


Adapter ring  
 ø 22 mm grid

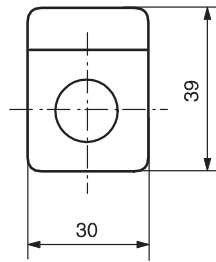
Switch banks	1	2	3	4	5	6	7	8
L [mm]	38.5	50.5	62.5	74.5	86.5	98.5	110.5	122.5



Front ring



Legend Plate

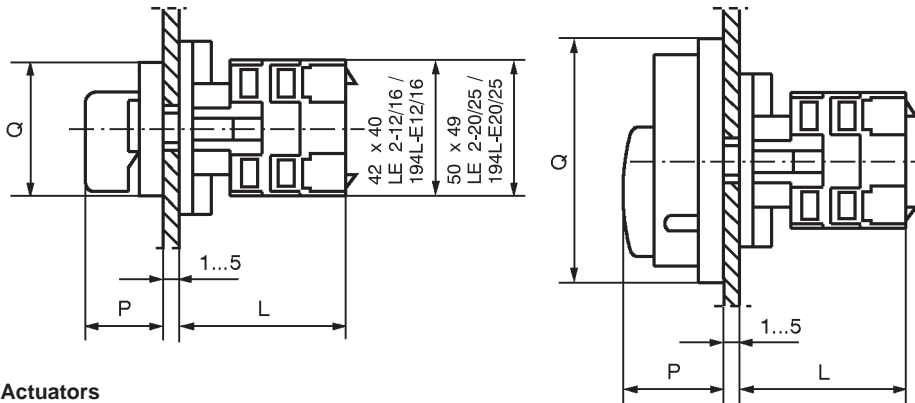


Label holder

**Front Installation**

Dimensions [mm]

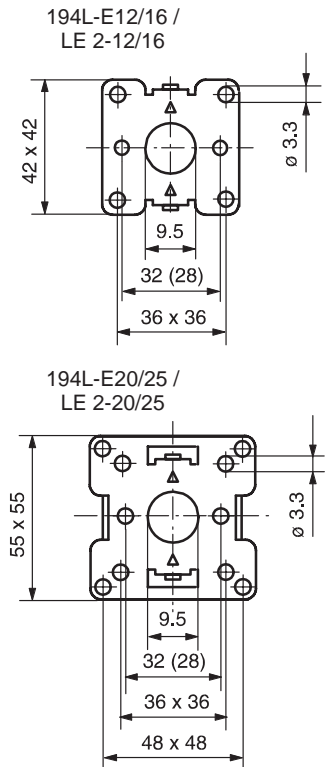
194L-E / LE 2 switch body with 194L-HE / LFS 2 actuators for screw fixture



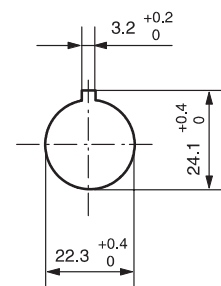
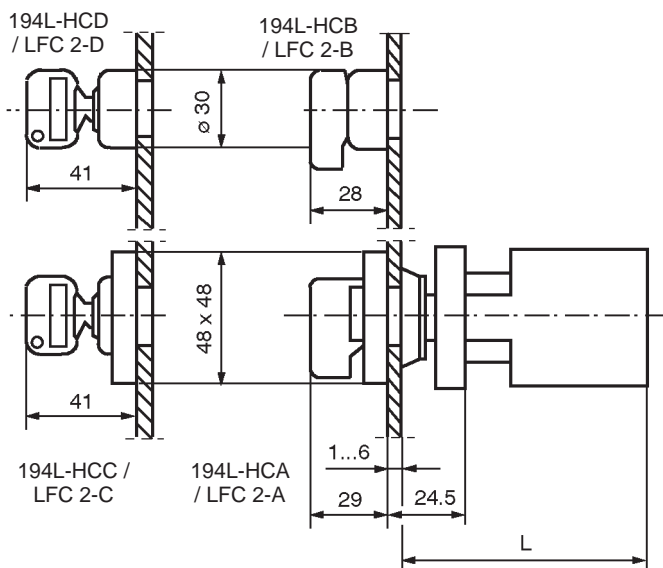
**Actuators**

Type	P	Q
194L-HE4A / LFS 2-A-4	28	48 x 48
194L-HE4I / LFS 2-I-4	28	48 x 48
194L-HE4S / LFS 2-S-4	28	48 x 62
194L-HE6A / LFS 2-A-6	28	64 x 64
194L-HE6I / LFS 2-I-6	28	64 x 64
194L-HE6S / LFS 2-S-6	28	64 x 78
194L-HE6N / LFS 2-N-6	34	67 x 67
194L-HE6G / LFS 2-G-6	34	67 x 67

Switch banks	1	2	3	4	5	6	7	8
L for 194L-E12/16 / LE 2-12/16	44	54	64	74	84	94	104	114
L for 194L-E20/25 / LE 2-20/25	44.5	57	69.5	82	94.5	107	119.5	132



194L-E / LE 2 switch body with 194L-HC / LFC 2 actuators for central fixture



Switch banks	1	2	3	4	5	6	7	8
L for 194L-E12/16 / LE 2-12/16	67.5	77.5	87.5	97.5	107.5	117.5	127.5	137.5
L for 194L-E20/25 / LE 2-20/25	69	81.5	94	106.5	119	131.5	144	156.5

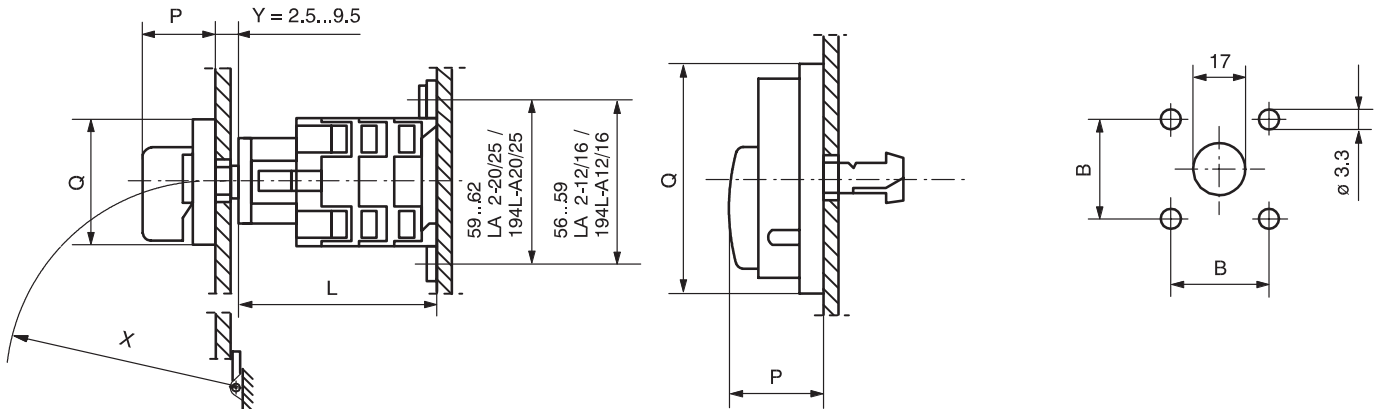
Bulletin 194L / L 2  
**Control and Load Switches**

**Dimensions**

**Base Mounting**

Dimensions [mm]

**194L-A / LA 2 switch body with 194L-HE / LFS 2 actuators for screw fixture**



Y min.	X ≥	Y max.	X ≥
2.5	150	9.5	90

Switch banks	1	2	3	4
L for 194L-A12/16 / LA 2-12/16	58	68	78	88
L for 194L-A20/25 / LA 2-20/25	58	71.5	84	96.5

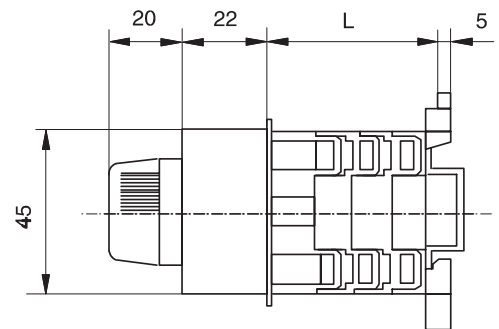
+2.5 mm for DIN 46 277 (35 mm) rails

**Actuators**

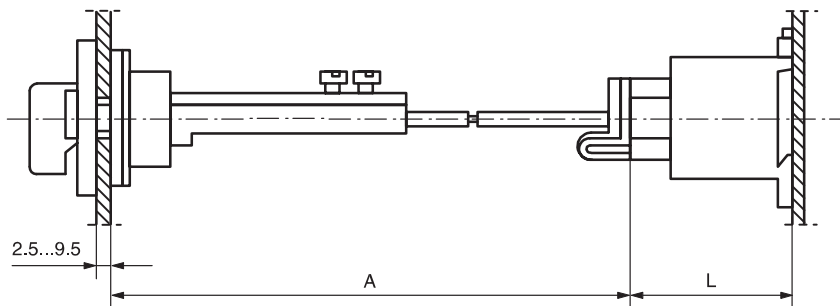
Type	P	B	Q
194L-HE4A / LFS 2-A-4	28	36	48 x 48
194L-HE4I / LFS 2-I-4	28	36	48 x 48
194L-HE4S / LFS 2-S-4	28	36	48 x 62
194L-HE6A / LFS 2-A-6	28	48	64 x 64
194L-HE6I / LFS 2-I-6	28	48	64 x 64
194L-HE6S / LFS 2-S-6	28	48	64 x 78
194L-HE6N / LFS 2-N-6	34	48	67 x 67
194L-HE6G / LFS 2-G-6	34	48	67 x 67

**194L-A / LA 2 switch body with 194L-HE4P-... / LFS 2-P-4-... actuators**

Switch banks	1	2	3	4
L for 194L-A12/16 / LA 2-12/16	35	45	55	65
L for 194L-A20/25 / LA 2-20/25	33.5	48	60.5	73



**194L-A / LA 2 switch body with metal shaft extension**

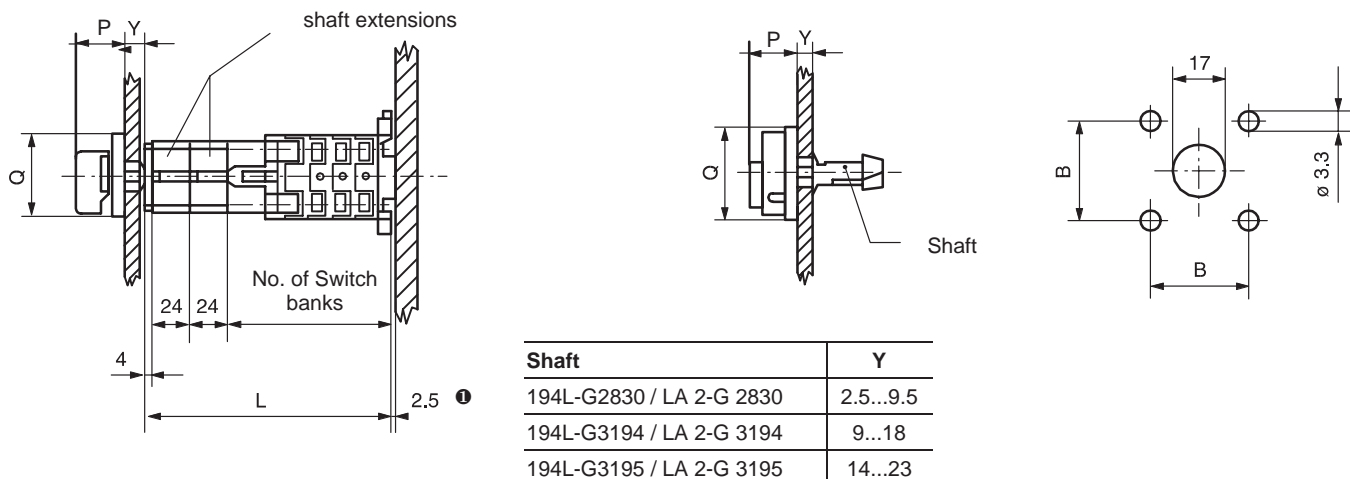


Switch banks	1	2	3	4
L for LA 2-12/16 / 194L-A12/16	54	64	74	84
L for LA 2-20/25 / 194L-A20/25	55	67.5	80	92.5

With DIN rail 46 277 (35 mm) + 2.5 mm

Type	A
LA 2-G 3393 / 194L-G3393	110...235
LA 2-G 3394 / 194L-G3394	230...350

194L-A / LA 2 switch bodies with 194L-HE / LFS 2 actuators and shaft extension 194L-G2853 / LA 2-G 2853



194L-A12/16 / LA 2-12/16 switch body

No. of switch banks	1	2	3	4
L with 1 shaft ext.	82	92	102	112
L with 2 shaft exts.	106	116	126	136
L with 3 shaft exts.	130	140	150	160
L with 4 shaft exts.	154	164	174	184
L with 5 shaft exts.	178	188	198	208
L with 6 shaft exts.	202	212	222	232

194L-A20/25 / LA 2-20/25 switch body

No. of switch banks	1	2	3	4
L with 1 shaft ext.	83	95.5	108	120.5
L with 2 shaft exts.	107	119.5	132	144.5
L with 3 shaft exts.	131	143.5	156	168.5
L with 4 shaft exts.	155	167.5	180	192.5
L with 5 shaft exts.	179	191.5	204	216.5
L with 6 shaft exts.	203	215.5	228	240.5

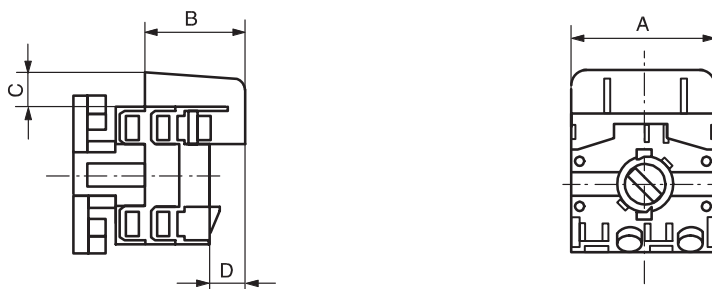
Actuators

Type	P	B	Q
194L-HE4A / LFS 2-A-4	28	36	48 x 48
194L-HE4I / LFS 2-I-4	28	36	48 x 48
194L-HE6A / LFS 2-A-6	28	48	64 x 64
194L-HE6I / LFS 2-I-6	28	48	64 x 64
194L-HE6N / LFS 2-N-6	34	48	67 x 67
194L-HE6G / LFS 2-G-6	34	48	67 x 67

① Mounting on a DIN 46 277 (35 mm) rail

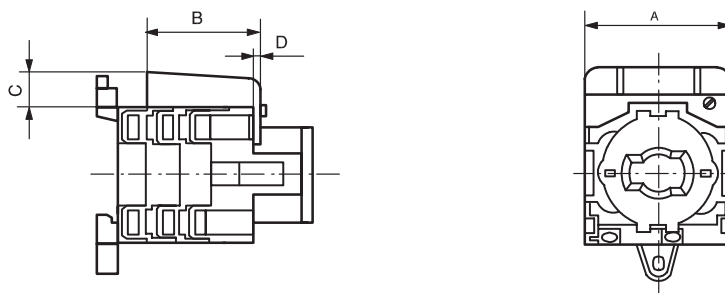
194L-E / LE 2 switch body with terminal cover

Type	A	B	C	D
194L-E12/16 / LE 2-12/16	40	42.5	12	2.5
194L-E20/25 / LE 2-20/25	49	37.5	12	2.5

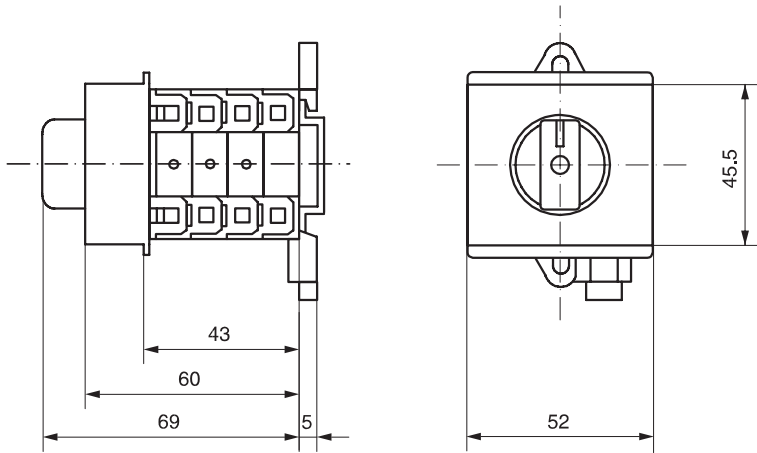


194L-A / LA 2 switch body with terminal cover

Type	A	B	C	D
194L-A12/16 / LA 2-12/16	40	42.5	12	2.5
194L-A20/25 / LA 2-20/25	49	37.5	12	2.5

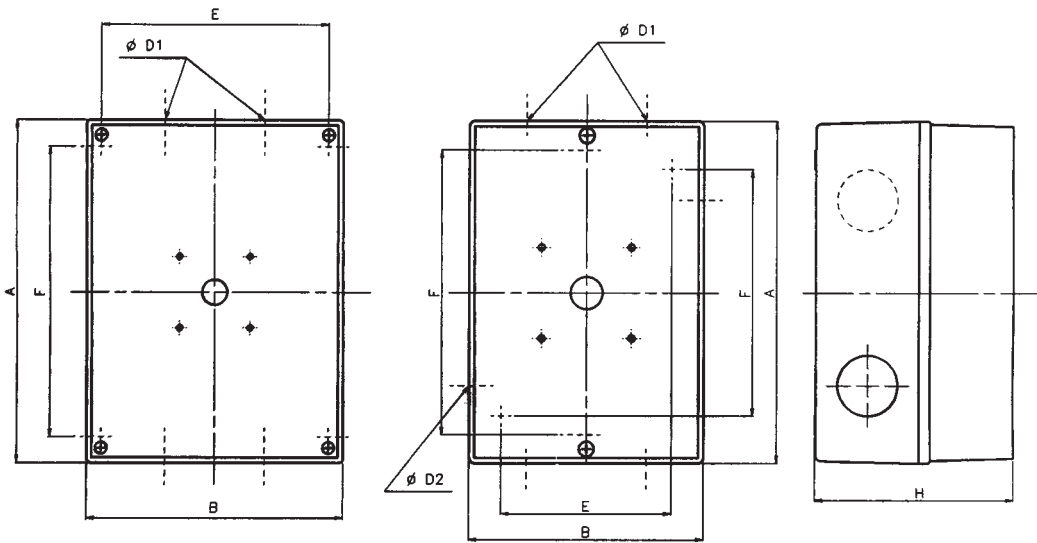


194L-A12(16)...-Q / Q LA 2-12(16)...-Q switch series



**Base Mounting 194L-A / LA 2**

Thermoplastic Enclosure



12

For switch		Enclosure		A	B	øD1	øD2	E	F	H
Type	Switch banks	ABS	Noryl							
194L-A12...25 / LA 2	1 and 2	194L-G3572 / LA 2-G3572	194L-G3576 / LA 2-G3576	150	95	22.5	22.5	60	115	86
194L-A12/16 / LA 2	3, 4 and 5	194L-G3573 / LA 2-G3573	194L-G3577 / LA 2-G3577	150	95	22.5	22.5	60	115	111
L194L-A20/25 / LA 2	3 and 4									



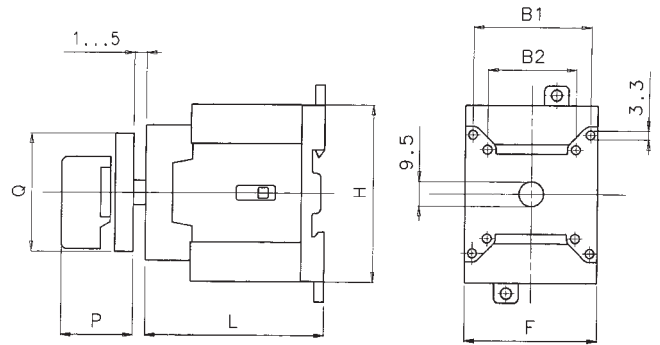
**Front Mounting 194E-E**

Dimensions [mm]

3-pole

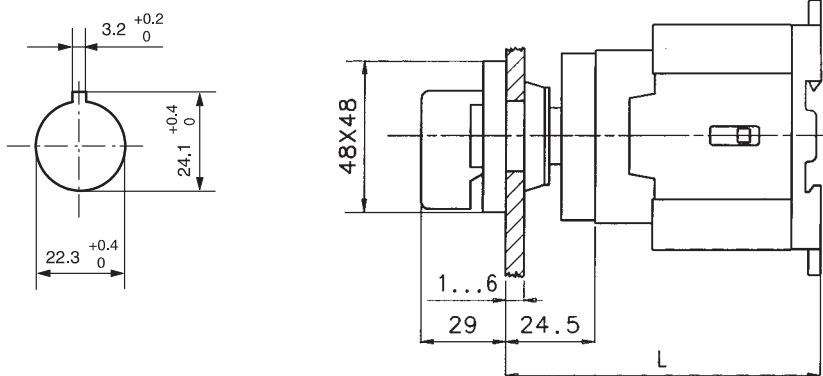
**Actuator**

Type	P	Q
194L-HE4A	28	48 x 48
194L-HE4A	28	48 x 48
194L-HE4A	28	48 x 62
194L-HE6A	28	64 x 64
194L-HE6I	28	64 x 64
194L-HE6S	28	64 x 78
194L-HE6N	34	67 x 67
194L-HE6G	34	67 x 67



Type	B1	B2	F	H	L
194E-E25/32	–	36	45	64	60
194E-E40/63	48	36	54	72	74
194E-E80/100	48	36	72	90	90

**194E-E switch body with 194L-HCA actuators for central fixture**



Type	L
194E-E25/32	84.5
194E-E40/63	98.5
194E-E80/100	114.5

# Bulletin 194E Series B Control and Load Switches

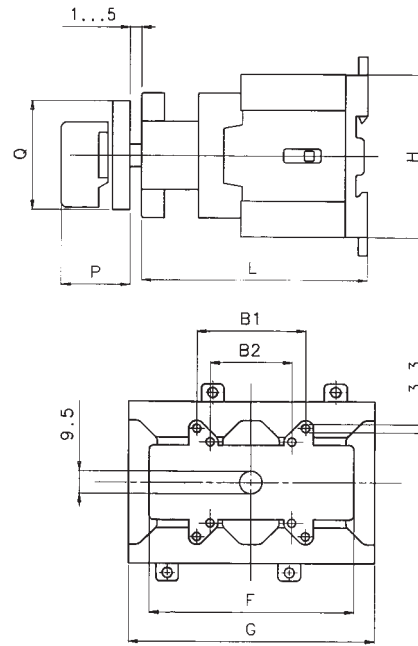
## Dimensions

### Front Installation 194E-E

#### 6-pole

##### Actuator

Type	P	Q
194L-HE4A	28	48 x 48
194L-HE4A	28	48 x 48
194L-HE4A	28	48 x 62
194L-HE6A	28	64 x 64
194L-HE6I	28	64 x 64
194L-HE6S	28	64 x 78
194L-HE6N	34	67 x 67
194L-HE6G	34	67 x 67

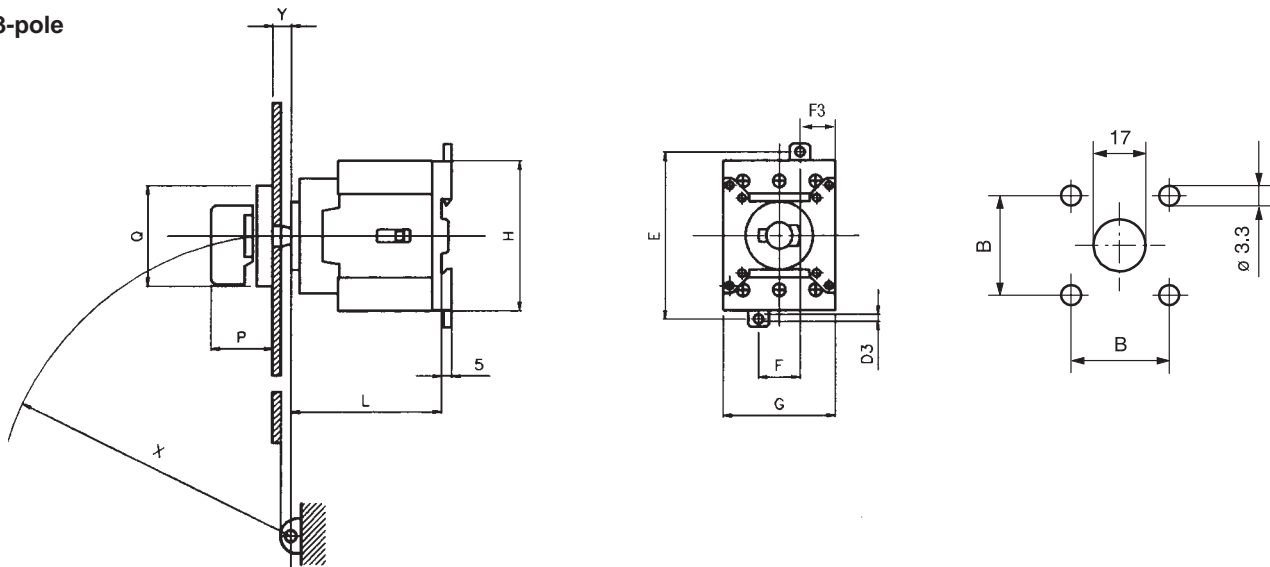


Type	B1	B2	F	H	L
194E-E25/32	-	36	90	64	85
194E-E40/63	-	36	108	72	99
194E-E80/100	48	36	144	90	115

### Base Mounting 194E-A

#### Dimensions [mm]

#### 3-pole



Type	Y min.	X ≥	Y max.	X ≥
194E-A25/32	5	142	9.5	90
194E-A40/63	2.5	150	9.5	90
194E-A80/100	2.5	150	9.5	90

Type	D3	E	F	F3	G	H	L
194E-A25/32	4.5	70	15	15	45	64	59
194E-A40/63	4.5	80	20	17	54	72	73
194E-A80/100	5.6	95	25	25.5	72	90	89

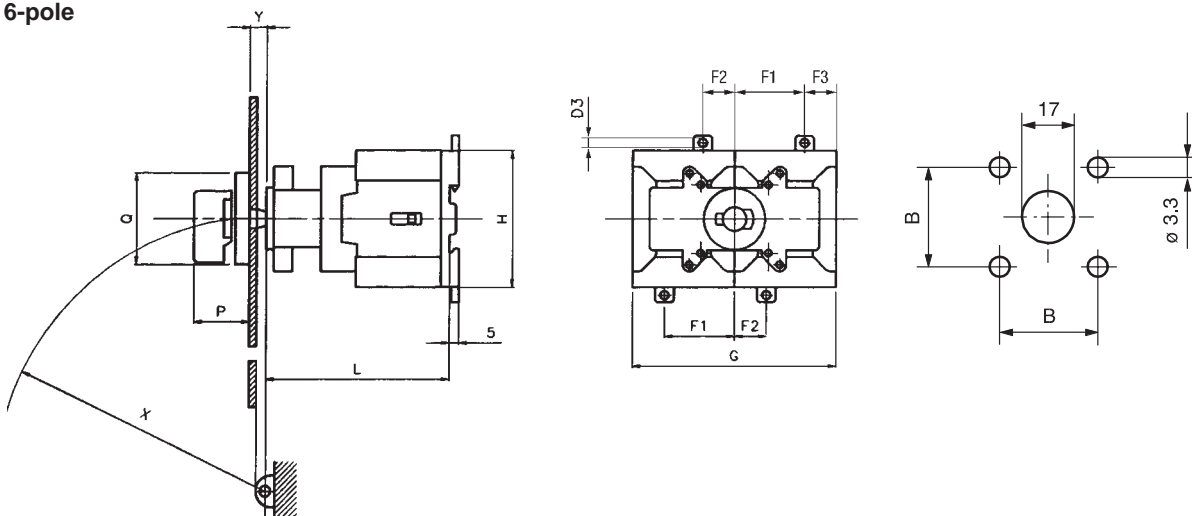
##### Actuator

Type	P	B	Q
194L-HE4A	28	36	48 x 48
194L-HE4I	28	36	48 x 48
194L-HE4S	28	36	48 x 62
194L-HE6A	28	48	64 x 64
194L-HE6I	28	48	64 x 64
194L-HE6S	28	48	64 x 78
194L-HE6N	34	48	67 x 67
194L-HE6G	34	48	67 x 67

**Base Mounting 194E-A**

Dimensions [mm]

6-pole



Type	Y min.	X ≥	Y max.	X ≥
194E-A25/32	5	142	9.5	90
194E-A40/63	2.5	150	9.5	90
194E-A80/100	2.5	150	9.5	90

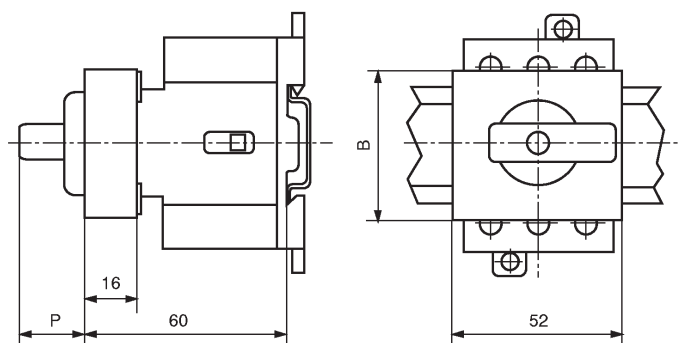
Type	D3	E	F1	F2	F3	G	H	L
194E-A25/32	4.5	70	30	15	15	90	64	84
194E-A40/63	4.5	80	37	17	17	108	72	98
194E-A80/100	5.6	95	48.5	23.5	25.5	144	90	114

**Actuator**

Type	P	B	Q
194L-HE4A	28	36	48 x 48
194L-HE4I	28	36	48 x 48
194L-HE4S	28	36	48 x 62
194L-HE6A	28	48	64 x 64
194L-HE6I	28	48	64 x 64
194L-HE6S	28	48	64 x 78
194L-HE6N	34	48	67 x 67
194L-HE6G	34	48	67 x 67

194E-A Type Q load switch and main switch / EMERGENCY OFF switch,  
 Type R load switch for installation in distribution cubicle

3-pole



Type	P
194E-AQ	20
194E-AR	23

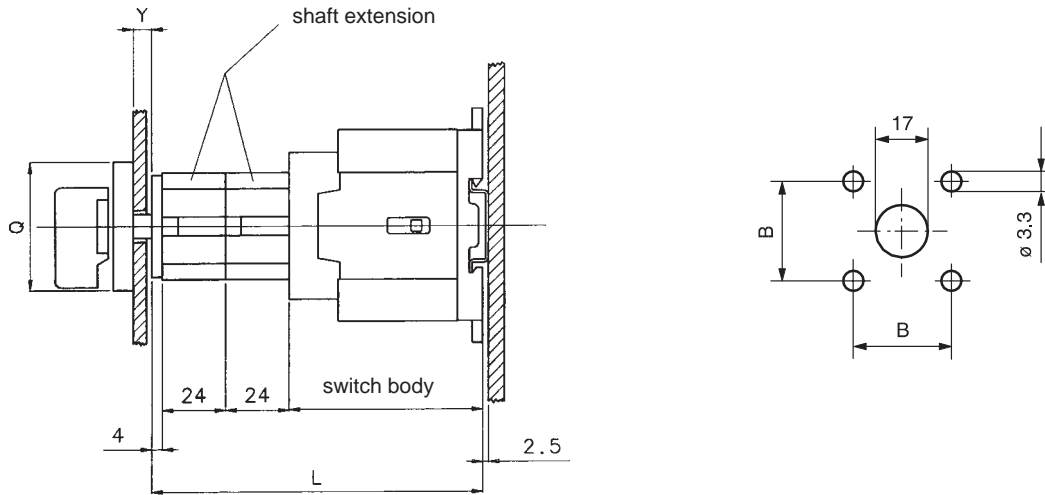
Bulletin 194E Series B  
**Control and Load Switches**

Dimensions

**Base Mounting 194E-A**

Dimensions [mm]

**194E-A switch body with 194L-G2853 shaft extension**



**Switch body**

No. of switch banks	194E-A25/32	194E-A40/63	194E-A80/100
L with 1 shaft extension	88	102	118
L with 2 shaft extensionen	112	126	142
L with 3 shaft extensionen	136	150	166
L with 4 shaft extensionen	160	174	190
L with 5 shaft extensionen	184	198	214
L with 6 shaft extensionen	208	222	238

Type	Y
194L-G2830	2.5...9.5
194L-G3194	9...18
194L-G3195	14...23

**Actuator**

Type	B	Q
194L-HE4A	36	48 x 48
194L-HE4I	36	48 x 48
194L-HE6A	48	64 x 64
194L-HE6I	48	64 x 64
194L-HE6N	48	67 x 67
194L-HE6G	48	67 x 67

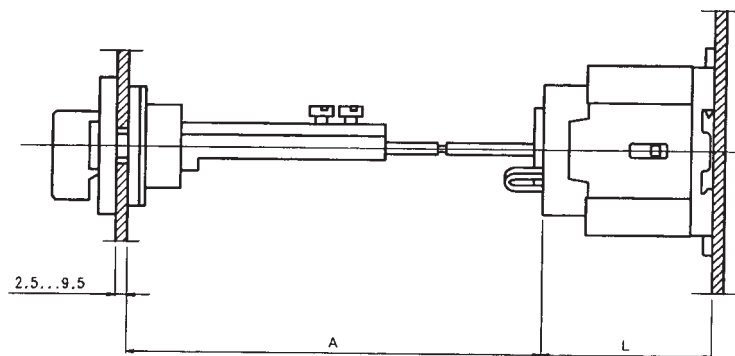
**Front Installation 194E-E**

**194E-A switch body with metal shaft extension**

Type	A
194L-G3393	110...235
194L-G3394	230...350

Type	LØ
194E-A25/32	60
194E-A40/63	74
194E-A80/100	90

⊕ + 2.5 mm DIN 46 277 (35 mm) rails

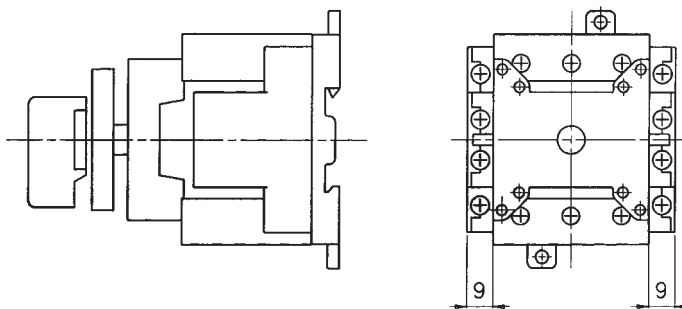


**Base Mounting and Front Installation**

Dimensions [mm]

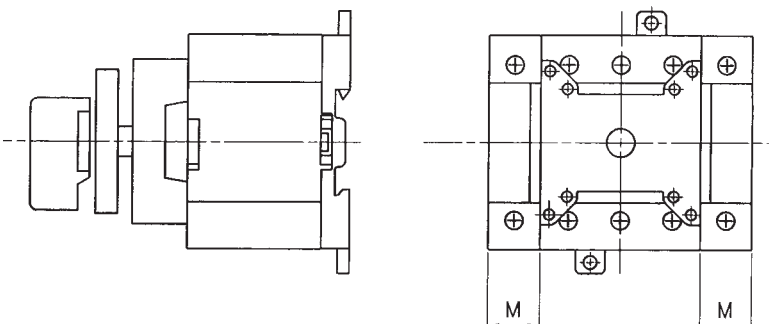
**194E with auxiliary switch block fitted**

Contacts	M
1 N/O + 1 N/C	9
1 N/O + 1 N/C	18



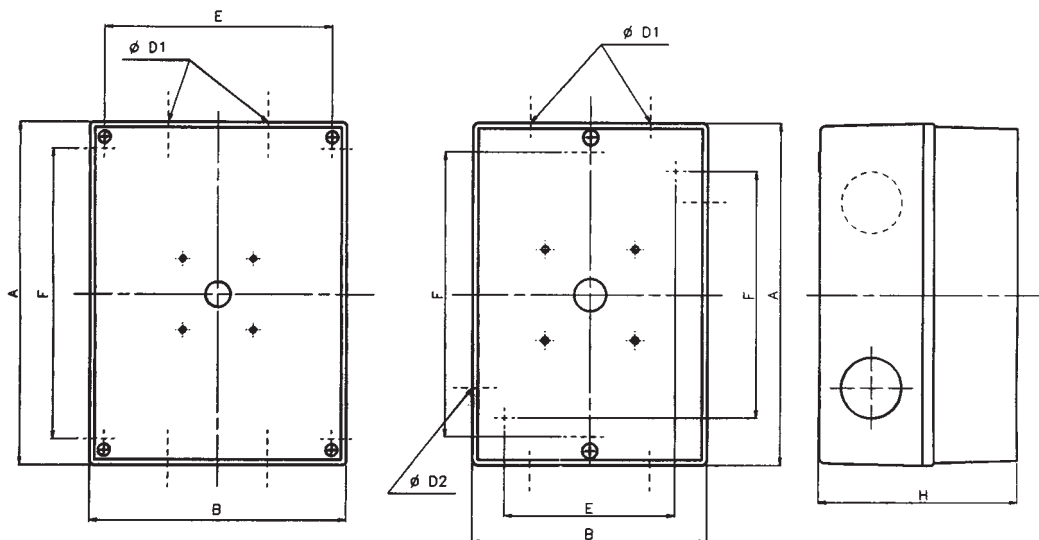
**194E with 4th pole, ground and neutral terminals**

Type	M
194E-20/32	14
194E-40/63	17.5
194E-80/100	22



**Front Installation 194E-E**

**194E load switch in enclosure for base mounting**



Complete switches		Enclosure		A	B	øD1	øD2	E	F	H
Type	Poles	ABS	Noryl							
194E-Y 3-32	3 and 4	194L-G3572	194L-G3576	150	95	22.5	22.5	60	115	86
	6	194E-G3663	194E-G3664	180	125	37.5	-	-	145	105
194E-Y 3-40/63	3 and 4	194E-G3663	194E-G3664	180	125	37.5	-	-	145	105
	6	194E-G3665	194E-G3666	230	175	47.5	-	155	195	120
194E-Y 3-80/100	3 and 4	194E-G3665	194E-G3666	230	175	47.5	-	155	195	120